

TRANSPORTATION BY WATER

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PREFACE

TRANSPORTATION by water is an important part of a service essential to business and to social welfare. Economic activities are so carried on and society is so organized that little can be produced and but few wants can be satisfied without employing the facilities and agencies of transportation. Without the steamship, the locomotive, the automobile, the airplane and the instruments of instantaneous electric communication, production, trade and other business pursuits, as well as social organization and intercourse, were mainly local, but during the past hundred years and especially within recent decades there has developed a world economy.

We accept as a matter of course the fact that things are grown or made not only for a country-wide but for a world-wide market and that each locality draws from the four quarters of the globe the goods by which it satisfies its ever increasing wants. Such a statement must seem trite to those whose lives began within the twentieth century, but to those whose span of life reaches back fifty years or more, the contrast between the past and the present, between the localism of thought and life of former times and the economic and political nationalism and internationalism of the present is most impressive.

One hears at every turn a repetition of the truism, "this is a changing world." Can there be any more interesting subject for study than the causes that have made dynamic a world that was formerly not static, it is true, but subject to slow change? Changes in ways of living, in social and economic life, are the result of many factors, but no influence is more controlling than transportation and communication. It is their marvelous development that has made it possible for education and the other factors to be effective. Indeed, it is transportation and communication that are giving unity to the economic interests, the intellectual life, the ethical concepts, the political thought of

the peoples within national boundaries, and of the peoples of the nations of the world

There are four major kinds of transportation, each with its appropriate vehicles for carriage two kinds are on the land, by highway and railroad, one on the waterways, inland and marine, and now of late one in the air, by airplane and airship Each of the several facilities renders a distinct service To some extent they are competitive, but in large measure they are complementary, each supplementing the other Their coordination is as yet but partial, but when fully accomplished the four facilities and the agencies that employ them in rendering service will provide a unified transportation system of maximum efficiency, each part doing that which it is best fitted to perform

The business and service of transportation by each of the four facilities—highway, railroad, waterway, and airway—and the many problems of management, finance, rates, intercorporate relations and government regulation can be discussed comprehensively only by devoting at least one volume to each facility and its agencies This has been done for railroad, highway, and ocean transportation by more than one writer, some emphasizing certain phases of their subject while other authors have given major consideration to different aspects in their treatment¹

This volume deals with transportation by water, with the facilities, agencies, services, business management, rates, and

¹ Mention may be made of the following textbooks on transportation
E R Johnson and T W Van Meter, *Principles of Railroad Transportation* (Appleton, 1921)

E R Johnson and G G Huebner, *Principles of Ocean Transportation* (Appleton, 1918)

Abraham Beiglund, *Ocean Transportation* (Longmans, 1931)

Stuart R Daggett, *Principles of Inland Transportation* (Harper, 1934)

Eliot Jones, *Principles of Railway Transportation* (Macmillan, 1924)

E R Johnson, G G Huebner, and G L Wilson, *Principles of Transportation* (railroad, highway, water, and air) (Appleton, 1928)

Sidney L Miller, *Railway Transportation Principles and Point of View* (Shaw, 1933)

G Lloyd Wilson, *Traffic Management* (Appleton, 1928)

F K Edwards, *Principles of Motor Transportation* (McGraw Hill, 1933)

Numerous phases or problems of transportation have been discussed in detail in special treatises Among such works are

W Z Ripley, *Railroads Rates and Regulation* (Longmans, 1912)

W Z Ripley, *Railroads Finance and Organization* (Longmans, 1915)

G G Huebner, *Ocean Steamship Traffic Management* (Appleton, 1920)

H S Perry, *Ship Management and Operation* (Simmons Boardman, 1931)

H G Moulton and Associates, *The American Transportation Problem* (Brookings Institution, 1933)

government regulation of transportation upon inland and marine waterways. It is the outgrowth of other books by the same author, especially *Ocean and Inland Water Transportation*, which was published in 1906, and its successor, *Principles of Ocean Transportation*, which appeared in 1918. Like its predecessors, this volume is concerned not with the engineering phases of the subject, but with the economics of transportation by water and with the business and governmental problems connected therewith.

The point of view adhered to in the following treatise is that transportation by water is first of all a great business enterprise employing facilities of many kinds and having its intricate problems of service, administration, competition and rate-making. It is secondarily a business regulated and aided by the government. Three-fourths of the chapters are devoted to the facilities, services, agencies and tariffs—to the business of transportation by water—and one-fourth of the chapters to government regulation and aid, or to public policy towards shipping. The volume should prove instructive and useful not only to the college or university student seeking to prepare himself for life as a business man, but also for those who are already actively concerned with some phases of transportation by water or with some industry related thereto. The treatment is intended to be both academic and practical.

A study of transportation services and of the questions and problems to which they give rise should logically start with a consideration of the facilities by means of which the agencies or carriers perform the services. What is done depends upon and is conditioned by the facilities that may be used and by the agencies that act. Tools are inseparable from accomplishment, and progress in achievement is made possible by improvement in facilities and in the efficiency of their use.

The water transportation system or the facilities it comprises includes, first, the carrier, the vessel or vehicle. The vessel used for transportation is operated on so many kinds of waterways—the ocean, the lakes, rivers and canals—and is employed in the performance of so many dissimilar services that it is of many types and varieties. Vessels are designed and constructed to meet service demands and are in a constant state of evolution. Pos-

sibly at no time in the past have changes and improvements in the design of vessels and in their power equipment, for the purpose of adapting them to the requirements of service, been so rapid as at present. Specialization in service, provisions for the shipment of perishables of different kinds that formerly could not be sent overseas, the installation of increasingly economical or more efficient engines, the addition of equipment that reduces the risk of loss of property or life, these and other technical advances are the order of the day in larger measure than they have been in the past.

The study of ships, particularly the ocean vessel, has a fascinating human interest (as also does the study of the railroad, the motor car and the airplane) because so many of the things we eat, wear or otherwise enjoy are made available by carriers on the seas, because it is such carriers that make possible the pleasures and satisfactions of travel in foreign lands, and because it is the ever increasing trade, travel and international intercourse by means of the argosies of the sea that are gradually lessening racial animosities and knitting the countries of the world into a family of nations.

The water transportation system includes, second, the ways over which vessels travel, the ocean routes and the inland waterways. The waterway provided by nature or artificially created determines the size and many other characteristics of the vessel used for navigation. While the ocean and such bodies of water as the five Great Lakes of the United States and Canada provide natural waterways, much has to be done to furnish those waterways with ports having channels of adequate depth and harbors of ample area, to deepen and improve the connections of the Lakes, and also to make riverside cities such as Philadelphia, New Orleans, or Portland, Oregon, ocean ports accessible and useful to large vessels. Many countries, notably the United States, have large rivers that are navigable or can be made so by canalization, and to some extent it is possible to extend or connect the inland waterways provided by lakes and rivers with each other and the sea by canals that can be used either by lake and river boats or by towed barges operated upon the canals.

Much attention is being given in the United States to the

improvement of inland waterways and the possibility and economic advantage of connecting them with each other and the ocean by canals, in order thereby to create a coordinated system of transportation by water, coastwise and upon lakes, rivers, and canals. Indeed, plans are under consideration for coordinating transportation upon the Great Lakes and the ocean by means of a 27-foot or 30-foot channel in the St. Lawrence River and around its rapids.

The scope and limitations of the economic use of inland waterways, canals and canalized rivers, as a part of a coordinated system of transportation by railroads, highways and waterways, present a difficult practical problem concerning which there is much current discussion. The subject merits careful study, and such a study should be aided by the data that are set forth in the following pages concerning the transportation facilities and services of rivers and canals and the policy being followed by the United States Government and some states to bring about the larger use of inland waterways and to coordinate them with the railroads and highways as parts of a unified country-wide system of transportation.

Transportation by water requires, in addition to vessels and waterways, port and terminal facilities. These are provided in part by rail or ocean carriers, by shippers, and by the public, as will later be explained. As trade and commerce increase in volume and steadiness of flow, increasing amounts of capital are invested in docks, piers, wharves, warehouses, elevators, cold-storage houses, produce markets, cranes and other mechanical facilities. The railroads, the carriers by water and the public cooperate to promote the transfer of traffic from carrier to carrier and to reduce the expenses incident thereto, while both railroads and steamship lines cooperate with producers and merchants by providing terminal facilities not only for the transfer but also for the marketing, distributing and storing of goods, especially perishable products.

The producer, the carrier and the trader work together to perform the services of production and distribution in the most efficient and economical manner. This has made possible both a more intensive production in older regions and a wider distribution of production by enabling hitherto uncultivated regions to

be opened up and formerly unavailable resources to be developed There is a close connection between the remarkable provision of terminal facilities during recent years and the striking changes that have taken place in food consumed, fresh fruits, vegetables and meat being general on all tables Likewise the buying habits of people have changed The needs of the day and hour are met by small purchases frequently made of grocers and merchants who are able to meet the daily demands of trade and consumption because of the speed and certainty of the transportation of all kinds of goods and because of the dependability of a continual supply of goods made possible, in large part, by the facilities carriers have provided at their terminals This is an illustration of the general fact that the transportation facilities by which men are served determine the manner of individual living and the salient characteristics of social life

The generalization just made is one way of stating the fact that transportation agencies are public utilities, that carriers by water—those discussed in this volume—render a service whose adequate and efficient performance at reasonable and just rates is a public necessity An understanding of water transportation and its relation to social welfare must include a knowledge not only of the facilities employed, to which reference has been made, but also of the agencies that use the facilities, the services they render, the business organization of the carriers, their business methods and their intercorporate and other relations as competitors and collaborators

Moreover, all public utilities, when entrusted to private corporations, are necessarily subject to such measure of government regulation as is required to keep competition within desirable limits, to allow or to prevent monopoly (whichever policy may be in the public interest), and to protect the public against rates that are unreasonable and services that are of less than standard efficiency Thus it is that in this treatise on the economics of water transportation the discussion has to do with facilities, services, business organization and methods, competition, monopoly, rates and fares, and government regulation

It is also necessary to discuss government aid as well as regulation Waterways are public ways The public has a large investment in waterway improvements and facilities which has

been made to further industrial development and to promote domestic commerce and international trade. Every country has its shipping policy, and at the present time the government of the United States is confronted with many problems of public policy. How extensively shall the inland waterways be improved at public expense for the free use of common and private carriers? Shall carriers on the coastwise and inland waterways be regulated as other carriers are? Shall the government aid the merchant marine in the foreign trade, and, if so, in what way? These and other questions can be answered intelligently only with full knowledge of transportation by water, its relation to transportation by other facilities and its relation to public well-being.

The purpose of this book may thus be said to be twofold, to be helpful to those engaged in, or preparing to enter, the business of water transportation, and to add to the knowledge we all need to possess to be of assistance in the development of a wise public policy as regards waterway development and government regulation of water transportation.

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PART I

THE WATER TRANSPORTATION SYSTEM

TRANSPORTATION BY WATER

CHAPTER I

THE OCEAN CARRIER

A STUDY of transportation by water logically begins with ocean vessels, the most important vehicles of carriage upon the water, and a discussion of the ocean vessel may well start with a consideration of power. Transportation by water is a service of carriage by vessels whose performance results from the application of power, formerly the force of the winds, now almost entirely mechanical power. Even a brief account of the several kinds of engines used in propelling ocean and other types of vessels, and a statement of the rapid development now taking place in such engines will require the recital of numerous details. Such details, however, have significance because of the fundamental relation of power efficiency and economy to shipping progress.

Although increased efficiency in service has been due in part to more effective business management, better terminal facilities, increased size of vessels, improved vessel construction and operating methods, and closer coordination with land carriers, no factor has exerted such widespread influence as the improvements that have been made in marine motive power. The greatly enhanced size of ocean carriers and the speed and regularity they maintain are made possible by improved motive power. Moreover, the present-day emphasis upon operating economies is stimulating marine engineers to develop even more efficient marine engines.

Carriers by water may be classified on the basis of motive power as follows: (1) sailing vessels and auxiliary sailers, (2) steamers, (3) vessels equipped with internal combustion engines, (4) vessels equipped with electric power units, and (5) unriggered craft.

THE SAILING VESSEL

Until the fifth decade of the nineteenth century, the sailing vessel was the only ship employed in ocean commerce. American "clipper" ships were the highest type of square-rigged sailing vessel during the forties and fifties. After 1858, and particularly after the Civil War, large schooners were constructed in the United States. Square-rigged ships, fore-and-aft "schooners," and some other types of sailing craft continue to be used to some extent in international and domestic commerce, but the sailing vessel has in recent years become of small importance. In the merchant marine of the world as a whole, the tonnage of steamers first exceeded that of sailing vessels in 1893, but in 1934 less than 2 per cent of the world's gross-register tonnage consisted of sailing vessels. Only 4 per cent of the documented gross tonnage operating under the flag of the United States in 1934 consisted of sailing vessels.¹

The sailing vessel has given way to the steamer and other vessels equipped with engines, because engined vessels are more efficient and more economical. The motive power of the sailing vessel costs nothing, the net cargo capacity is a larger percentage of gross capacity of the vessel, and the crew required is smaller than for a coal-burning steamer of equal tonnage, but these advantages are more than offset by the slow average speed of a sailing vessel, and the uncertainty as to the time of delivering cargo assigned to a ship whose movements depend upon winds and currents instead of upon its own propelling power. At the present time a vessel propelled by engines is considered to have on the average from three to four times the efficiency (as a freight carrier) of a sailing vessel of equal tonnage. This enables the steamer to take traffic away from the sailing vessel, despite the disadvantages which the steamer has as regards the cost of fuel, the large amount of space taken up by bunkers and machinery, and the somewhat larger crew required for the operation of the vessel.

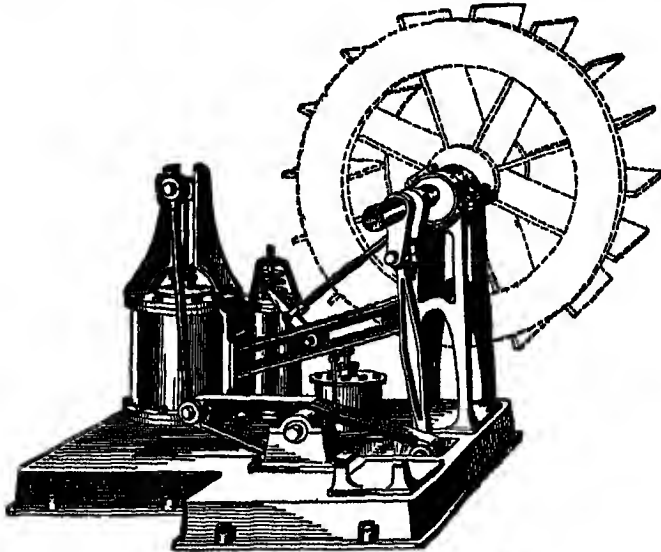
An attempt to revive the sailing vessel, in a modified form, has, however, been made by equipping such vessels with auxiliary engines, "impetus having been given to this type of craft by the

¹ Bureau of Navigation, Merchant Marine Statistics (1934)

development of the oil-burning diesel motor''² The use of auxiliary engines when the wind fails adds to the regularity and dependability of the auxiliary sailer

THE MARINE ENGINE

Although the practicability of using steam power to propel vessels was demonstrated by Robert Fulton in 1807, and the use of steamboats on rivers and bays became general during the succeeding decade, thirty years passed after Fulton successfully ran the steamboat *Clermont* on its first trip from New York to

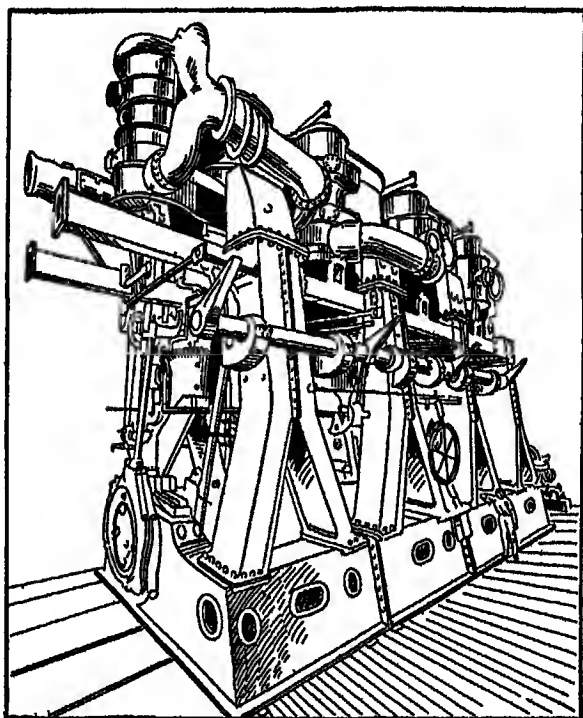


THE SIDE-LEVER MARINE ENGINE

Albany before it was demonstrated that the steamer could be used with commercial success in the transoceanic service. A sailing packet, the *Savannah*, equipped with an auxiliary steam-engine, crossed the Atlantic in 1819, but the first vessel to cross the ocean entirely under steam power was the *Royal William*, which completed a voyage from Quebec to London in 1833. The first sea-going steamer built expressly for the transatlantic service was launched at Bristol, England, in 1837.

²H. O. Calvin and E. G. Stuart, *The Merchant Shipping Industry* (1925), p. 8

The earliest sea going steamers were equipped with reciprocating engines of the side-lever type and with paddle-wheels. Many improved types of marine steam-engines have been developed since then, and the screw-propeller has displaced the paddle-wheel in deep-sea navigation. The last large ocean vessel to be fitted with side-lever engines and paddle-wheels was the *Scotia* which was constructed for the Cunard Line in 1862, thereafter



QUADRUPE-EXPANSION INVERTED DIRECT-ACTING MARINE ENGINE

the reciprocating steam-engine became the most important general type of marine engine. After 1870, the inverted, direct-acting steam-engine came to be exclusively used. The cylinders were placed inverted above the screw-shaft, with the cranks of which the connecting rods from the pistons were directly attached. It is a compact engine, as shown by the illustration. It was the best arrangement for the compound engine which allows

steam to enter one cylinder at high pressure, and, after moving the piston in this cylinder, to pass into one or more larger cylinders in succession. Triple-expansion engines made their appearance in 1881 and quadruple-expansion engines in 1894. Gradual improvement was also made in marine boiler construction. Reciprocating marine engines of the direct-action, triple-expansion type are still used to propel cargo steamers, particularly on the shorter voyages, while engines of the quadruple expansion type are used to propel large cargo steamers and large passenger vessels.

THE TURBINE ENGINE

A radically different power principle is applied in the turbine engine with which many ocean vessels are now equipped. Two general types of marine steam turbines, the "impulse" and the "impulse-and reaction" types, have been developed since they were invented respectively by DeLaval in 1883 and Parsons in 1884. The general principle is the same in both of the general types of turbine engines, power being generated by the impact of steam upon movable blades. The largest group of merchant steamers equipped with turbines consists of large, fast vessels, particularly passenger steamers. The turbine marine engine facilitates the concentration of power in single units. Great power and speed can also be obtained with reciprocating engines, but it is recognized that the change from triple-expansion to quadruple-expansion engines carried with it a substantial increase in weight, and the higher speed added to fuel consumption.

Turbine engines weigh comparatively less, they require less fuel and they occupy less space, thus exerting a favorable effect upon the steamer's displacement and dead-weight tonnage, its earning capacity, and its operating expenses. They also reduce vibration due to machinery, the simplicity of their construction and operation at times reduces delays and repair costs, and the absence of sliding parts reduces friction.

During later years turbines have also been installed in many combination passenger and cargo vessels. The efficiency of turbines on steamers operated at high speeds was recognized long before plans were devised for the use of turbines on steamers of moderate speed. Use of a reciprocating engine for high pressure

steam and a turbine for low-pressure steam also made the turbine available for cargo steamers of 15 knots or less. The major share of the tonnage constructed in American yards during recent years has been of vessels equipped with turbine engines, some of them with electric drive, but more with geared turbines.

USE OF OIL FOR FUEL

One of the most noteworthy developments in the operation of steamers during recent years has been the rapidly increasing use of oil instead of coal as fuel. In the maritime world as a whole, the oil-burning tonnage has advanced from 1,527,728 on June 30, 1914, to 30,462,237 June 30, 1934.^{*} The change from coal to oil has been particularly rapid in the United States, where on June 30, 1934, there were 1,966 steamers having a tonnage of 7,860,094 tons[†] gross equipped to burn oil. Bunker coal still is the standard fuel for more than half of the world's tonnage, but, in 1933, about 69 per cent of the steam tonnage registered and enrolled under the American flag was using fuel oil, and the percentage is increasing year by year. Some progress has recently been made in the use of pulverized coal.

Temporary reasons effective during the World War, when so many American steamers were being constructed, are partly responsible for the rapid adoption of fuel oil in the American shipping industry, but there are permanent advantages in the use of oil as fuel for the development of steam. As fuel oil occupies less space than an equivalent amount of coal, and as much of it can be stored in double-bottom tanks, substantial spaces for cargo may be released. Conversely, the adoption of fuel oil makes it possible to carry a large quantity of fuel on a voyage, and in that way either to increase the vessel's steaming radius or reduce the number of stops. It, moreover, reduces the working force required in the engineer's department so greatly as very materially to affect operating costs, particularly on American vessels where the wages paid are comparatively high. Oil can be taken on board rapidly and at small cost. Its greater cleanliness is a factor of moment in the operation of passenger steamers, and facilitates the cleaning of vessels and the loading of stores while

^{*} Bureau of Navigation, Merchant Marine Statistics (1934), p. 98

[†] Including oil burners on Great Lakes. *Ibid.*, p. 66

fuel is being taken on board. The use of fuel oil also reduces the cost and delay incident to starting and hauling the fires of coal burners, it frequently adds to economy and efficiency in that it may be more easily controlled and regulated to meet the exact needs of the vessel, and in some instances it has been found that fuel oil has directly increased the efficiency and speed of particular steamers, the performance of which had formerly been unsatisfactory.

THE DIESEL ENGINE

A third type of ocean vessel, classified with reference to power, includes those equipped with internal combustion oil engines, named diesel engines, after their inventor, Rudolph Diesel, and first put into practical use in Germany in 1897. Thousands of stationary diesel engines have been constructed and sold throughout the world since then, and rapid progress has been made in the introduction of diesel marine engines. Since 1902-03, when the first diesel marine engine was built, and particularly since 1905, when the first reversible engine of this type was constructed, many improvements have been made, and numerous variations have been introduced by the several marine engine manufacturers who have undertaken their construction. The number of the world's merchant vessels of 100 tons gross and over, equipped with internal combustion oil engines, has increased from 60 on June 30, 1914, to 3,488 on June 30, 1934, and their gross tonnage advanced from 194,019 to 10,314,515 tons.⁵ In 1934 there were 297 American motor-ships with a total tonnage of 707,085 tons. Large fleets of motor vehicles are operated by several lines in Norway, Sweden, Germany, and Denmark. Great Britain has the largest aggregate motor marine tonnage (2,861,476 tons gross).

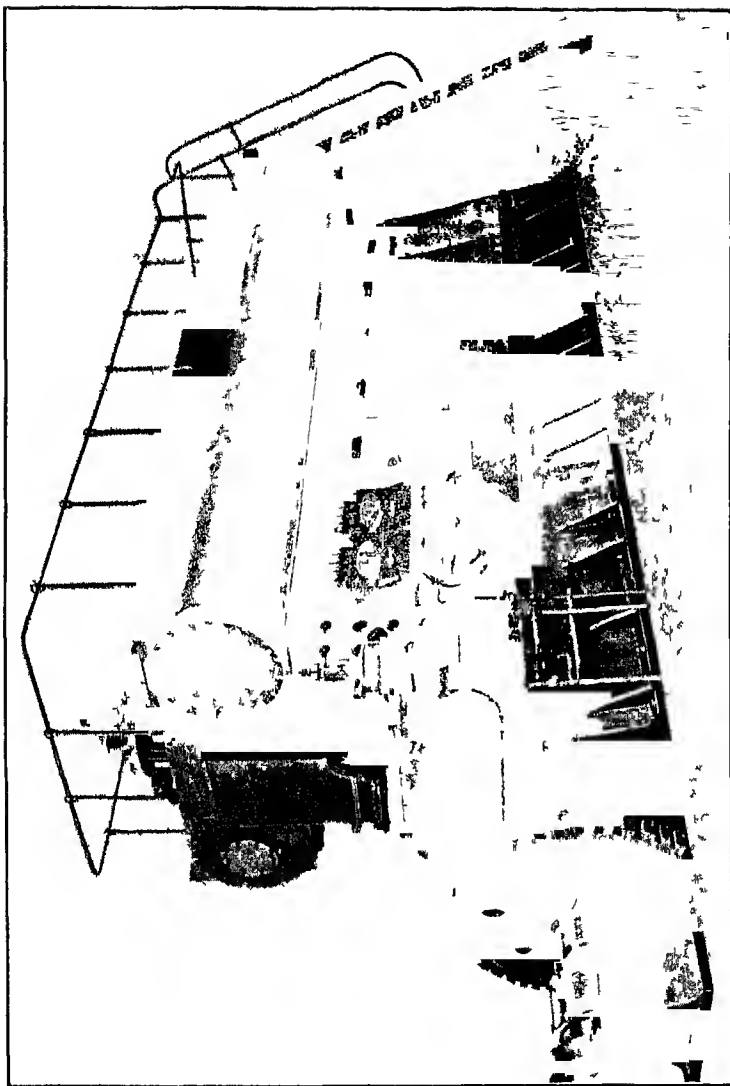
Diesel-engined vessels are not to be confused with oil-burning steamers, which merely substitute oil for coal as a means of generating steam in boilers. Diesel oil engines dispense with boilers, the oil being injected directly into the cylinders. Neither are they to be confused with gas motor vessels, the engines of which depend upon the explosion of gas made out of light oils or coal. Diesel oil engines burn the oil in the cylinders. Special diesel oil

⁵ Bureau of Navigation, Merchant Marine Statistics (1934), p. 98

is used but it is possible also to use crude petroleum, tar, or creosote oils, the residual mineral oils which remain at the refineries after the lighter oils have been distilled, and a variety of other oils, the oil being injected under high pressure into the cylinders in the form of a fine spray, which is ignited, not by an electric spark or other local ignition, but by the high temperature resulting from the compression of air in the cylinders.

Diesel oil engines require less fuel than oil burners. The space required for fuel being at a minimum, the net space available for cargo is greater than when oil is used as fuel to generate steam power. The sailing radius of vessels is increased and the number of stops on long voyages to replenish the fuel supply is reduced by the adoption of diesel engines. Diesel engines, moreover, may be started at any time and within a very short time, no extensive preparations being required to get up pressure and power, and the necessity for an adequate and satisfactory water supply is eliminated. The weight of the ship's machinery and the space occupied by it are less in some instances, but this depends upon the types of engines installed and the use to which the motor vessel is to be put. The weight of a diesel marine engine in many cases exceeds that of a comparable steam engine, and the spaces occupied by diesel and steam engines owing to the national measurement rules according to which the net tonnage of vessels is determined, are frequently substantially alike. Fuel economy at sea and in port, and maximum space for cargo are the outstanding advantages of the diesel-engined vessel.

These advantages are offset in part by several disadvantages. The initial capital cost of a diesel engine is greater than that of a marine steam engine of equivalent power. Ship-owners have also in some instances been deterred from adopting diesel engines because of their absolute dependence upon oil. Should a shortage of fuel oil occur at any time or the price of fuel oil become exorbitant, which seems highly improbable under present conditions, the oil-burning steamer may revert to the use of bunker coal, but the motor vessel does not possess the advantage of such an alternative. The probability of such an occurrence is further reduced because it is possible for a diesel engine to use practically all kinds of fuel oils that do not contain sand, earthy matter or water, although the best results have thus far been attained from



A TWO-CYCLE, TRUNK-PISTON MARINE DIESEL ENGINE OF 2,130 S.H.P.

a grade of oil that is somewhat lighter and purer than heavy boiler oil and which usually sells at a somewhat higher price

The use of diesel engines in merchant shipping has been largely confined to cargo and combination vessels in the operation of which economy rather than maximum speed is the principal aim. Diesel engines have not been installed in the world's largest passenger liners the high speed of which is a controlling consideration, but a number of large passenger vessels have recently been fitted with diesel engines. Diesel engines are used in a number of warships, especially those of Germany's new fleet. The battleship *Deutschland* has eight 7,000 horse-power diesel engines, a total of 56,000 horse-power. It is said that this ship could circumnavigate the globe without refueling. All submarines are equipped with diesel engines.

Internal combustion oil engines depending upon hot tubes, electric sparks, or hot bulbs for ignition are usually referred to as semi-diesel engines. They are sometimes known as vaporizer oil engines because they vaporize the oil in the cylinders, but they should not be confused with gas engines, because they depend primarily upon combustion rather than explosion as a method of developing power.

THE MARINE GAS ENGINE

Marine gas engines are of two general types, those driven by gasoline or other light refined oils, and those depending upon producer gas. The fuel needed for the gasoline engine is costly, and in addition tends to reduce the safety factor when carried in large quantities for use as fuel on board ship. The extensive adoption of gas engines in the shipping industry does not now seem probable.

Producer gas engines depend upon gas obtained by the partial combustion of coal or other fuel in a gas producer plant. Far greater progress has been made in the use of diesel oil engines, because the economy in fuel claimed for the producer gas engine is reduced when the better grades of coal are required to obtain the best results, and also because little if any saving in the space required by the vessel's power plant is gained. The saving in fuel space, moreover, is less than on vessels equipped with diesel engines, a larger crew is needed than on an oil-motor ship, and

greater difficulty has been experienced in reversing the producer gas engine. Difficulties encountered in reversing the diesel oil engine during the earlier years of its development have been overcome to the satisfaction of the shipping industry.

THE ELECTRIC DRIVE

The most recent development in marine engine construction is the application of electricity to ship propulsion, the electric current being developed by using either steam or internal combustion oil engines. The United States dreadnought *Colorado*, the large passenger liner *President Hoover*, and the celebrated *Normandie* are examples of the many vessels on which power is generated by non-reversible turbo-generators equipped with diesel engines which drive electric generators and exciters. An increasing number of large vessels as well as yachts, tugs, fireboats, and oil tankers are being fitted with diesel electric plants.

INLAND AND SEA-GOING BARGES

There has been a tendency in recent years to supplement self-propelled vessels by using unrigged craft of various kinds for transporting bulky commodities. The number of barges documented under the flag of the United States has increased from 2,362 in 1900 to 5,321 in 1934, and their gross tonnage from 548,817 to 1,655,051 tons. In the latter year 1,093 barges of 135,380 tons gross were registered and were doubtless used in the nearby foreign trade. Many of the enrolled barges engaged in the coastwise trade of the United States are of the large sea-going type. The importance of barge transportation as a whole is understated in these figures, for many small barges are not officially documented.

Much the larger share of barges are small craft engaged in short-distance coastwise and inland traffic, and but few venture into the open sea. Distinct types of sea-going barges have, however, been developed, the small "inland barges" on the Atlantic seaboard which mainly use the inland route, being distinguished from the large sea-going barges which are towed on the outside or open-sea route. Many of the latter are known as "schooner barges," because they are fitted with short masts and sails, so that they may not be entirely helpless in case they break away from

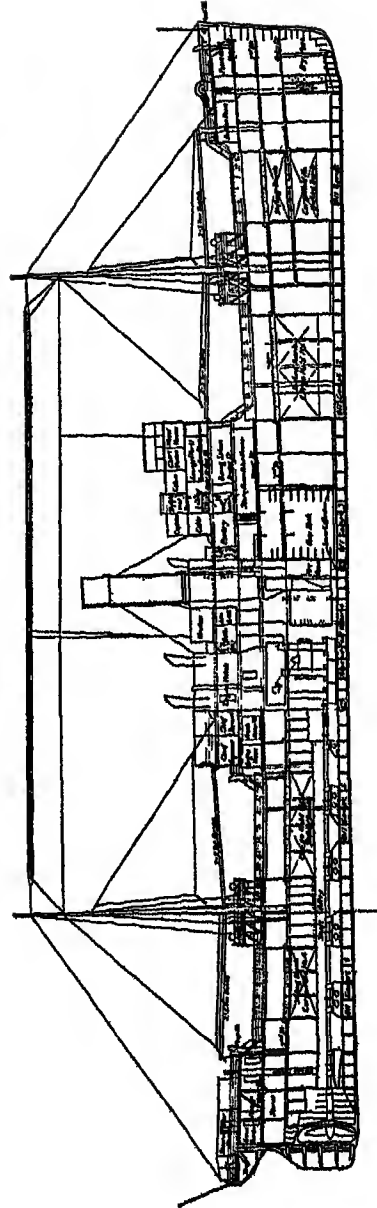
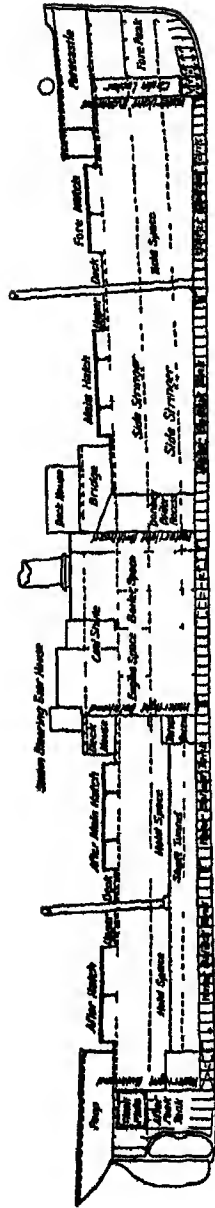
their towing steamer or tug Schooner barges are towed singly or in fleets and some of them have cargo capacities of over 3,000 tons

Barges are especially adapted to the transportation of bulk freight, such as coal, ore and pig iron, lumber, shingles and rail road ties, sand, stone, gravel, brick, lime, cement, tile and terracotta, fertilizers and phosphate rock, wood pulp, structural iron and steel, grain and other farm produce not requiring rapid delivery Where sea conditions will permit of their use with a reasonable degree of safety, the large sea-going barges or schooner barges provide the least expensive means of transporting such commodities The initial cost of construction is smaller than for either sailing vessel or steamer, barges being towed in fleets, the costly machinery of the tug serves to move several craft at once and may be more continuously employed than either the sailing vessel or steamship, they do not require so large a crew, each barge in a fleet of large sea-going schooner barges being manned by a crew of but three or four men, and, as compared with sailing vessels, barges have the advantage of greater regularity of service

The principal handicap of the sea going barge is its liability to be wrecked by heavy seas The need of avoiding rough weather interferes to some extent with their regularity of movement, and affects the marine insurance premiums which both barge and cargo are obliged to pay Weather conditions will doubtless at all times limit the use of towed barges in the coastwise and over sea trade The construction of protected toll-free inland routes sufficiently large to accommodate schooner barges would increase their use in the coastwise trade

STRUCTURAL FEATURES OF THE OCEAN CARRIER CONSTRUCTION OF THE HULL

While marine power has been developing, attention has been devoted to improvements in vessel materials and design The first steamers had wooden hulls, and, as was true of the substitution of the screw-propeller for the paddle-wheel, the change from wooden to iron vessels was brought about slowly The pioneer sea-going iron vessels were constructed at Liverpool in 1837-38, but rapid headway in the transition from wood to iron did not occur



PROFILES OF TWO-DECK AND THREE-DECK FREIGHT STEAMERS

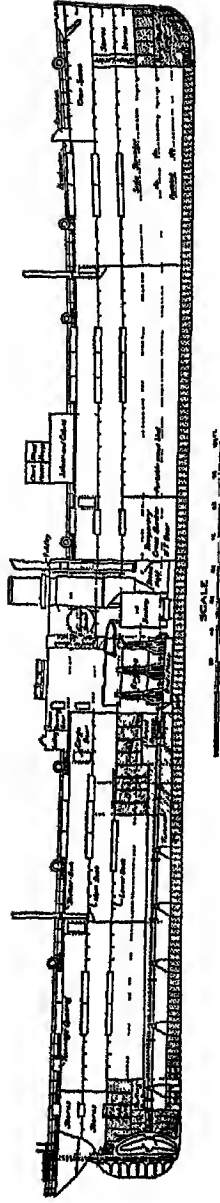
in Great Britain until after 1850, and in the United States not until after 1870. The next general change in structural material was from iron to steel. This began in Great Britain shortly before 1880 and has become so general that, at present, steel has almost displaced iron. Steel and iron vessels combined comprise over 98 per cent of the world's sea-going tonnage. The remainder consists of wooden, composite, and concrete vessels. Concrete had at various times been used successfully in the construction of barges, scows, etc., but its use in ocean shipping was not given serious attention until the World War created a demand for rapid construction. Only a few concrete vessels, however, were built, and the use of concrete for hull construction, except for barges, has not proven successful, and for barge hulls, wood and steel are preferred to concrete. A composite hull contains a metal framework and a wooden shell.

Attention has also been given to improvements in the construction of the framing of steel hulls. Framing may be transverse, longitudinal, or a combination of both, and although all frames have longitudinal as well as transverse members, some construction plans distinctly emphasize the one or the other. The three most generally used construction plans placing the emphasis upon the transverse members are (1) the use of hold beams which prevent the frames from spreading because of the weight of cargo, or closing because of pressure of water, (2) the use of web frames in lieu of hold beams, the floor plates of the vessel being continued up its sides, and (3) the use of "deep framing composed of two angles fitted together so as to form an extra heavy frame." The so-called Isherwood system places the emphasis upon the vessel's longitudinal frames. Its principal frames extend fore-and-aft, and its transverse frames and beams "are at widely spaced intervals and form complete transverse belts around the vessel." ^a

STRUCTURAL FEATURES AS REGARDS DECKS

Ocean vessels may also be grouped according to the number and arrangement of their decks and holds, and then above-deck or superstructures, and these in turn signify still further the efforts of marine engineers and architects to design vessels

^a R. Riegel, *Merchant Vessels* (1921), p. 39



PROFILE OF A STEAMER HAVING LOWER, MAIN AND SHELTER DECKS

closely adapted to the particular services for which they are intended

Among the simplest of sea-going steamships are the relatively small two-decked cargo vessels which have for the full length of the vessel a lower and main deck, above which the three most usual superstructures—the forecastle, bridge, and poop—are placed. In many instances, however, the main deck from abaft the bridge to the stern is raised four or five feet, so as to increase the capacity of the after-cargo hold and prevent the loaded vessel from trimming to the bow. Such a vessel is known as a “raised quarter decker.” The bridge, moreover, is often extended and brought nearer to the forecastle, thus creating a so called “well” between the bridge and forecastle, which in heavy weather may be awash. Vessels of this type are commonly known as “well-decked steamers.” When the main deck forward of the bridge is raised so as to increase the freeboard and reduce the shipping of water, the vessel is called a “raised foredecker.”

Larger steamers are fitted with three full-length decks, above which there may be superstructures and part-length or partial decks. When the frames of a three-decked vessel are carried full-sized to the upper deck, which is the strength deck, it is known as a “three-decker.” When the frames are made somewhat lighter between its middle and upper deck and the upper deck is of lighter construction, the vessel is a “spar-deck vessel”, and when the construction above the middle deck is still lighter, and the middle deck is the strength deck, the vessel is known as an “awning-deck vessel.” The upper deck of a three decked vessel may be fitted with small so called “tonnage openings,” the openings being placed there to make the space between the main and upper decks technically open to the sea. The vessel measurement rules of the United States, Great Britain, and other countries allow this space to be considered open and thus not included in the vessel’s tonnage. Such a steamer is known as a three-decked “shelter-deck vessel.” The tonnage opening is provided for the purpose of obtaining a lower net-register tonnage. The space under the deck with tonnage openings, however, is only technically open. The openings are really closed at sea and dry cargo may be carried in the space below the shelter deck.

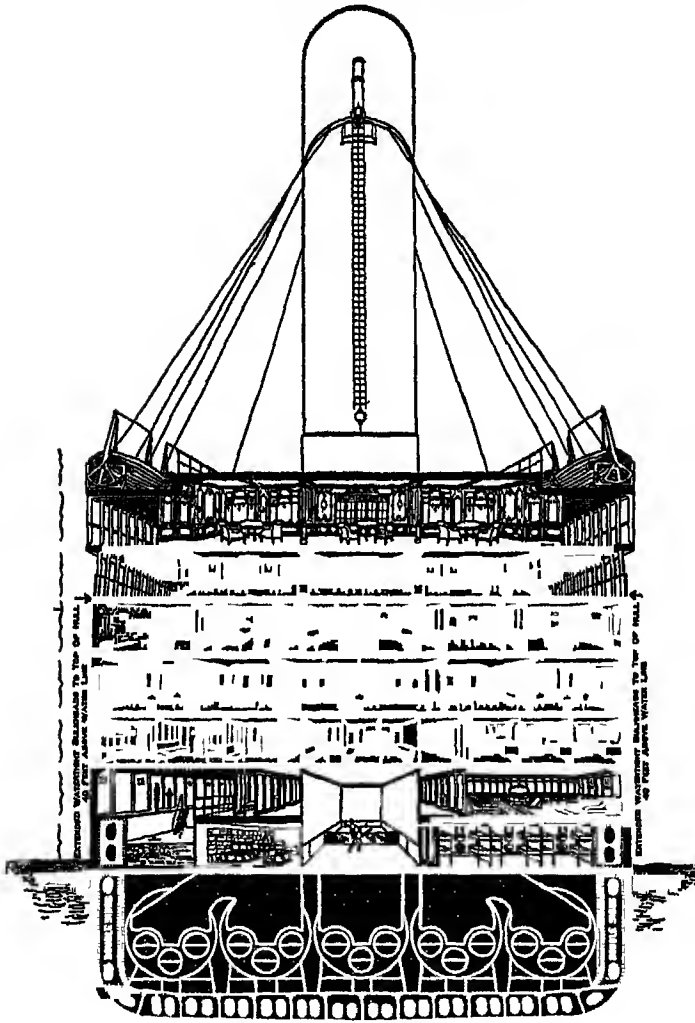
Large cargo liners and many express and combination liners

have four full-length decks and, from the standpoint of deck arrangements, become four deckers. The uppermost full-length deck, as in the case of three deckers, may be of the shelter-deck type. In fact, the fourth deck of large vessels is frequently called the shelter deck even when not fitted with tonnage openings, but in the absence of such openings the term is a misnomer. Four-decked vessels, especially when engaged in the passenger service, may be fitted with various part-length decks, such as the bridge, promenade and boat decks. Large express and combination liners may have more than four full-length decks, and in addition other decks not extending the entire length of the vessel.

SPECIAL TYPES OF VESSELS

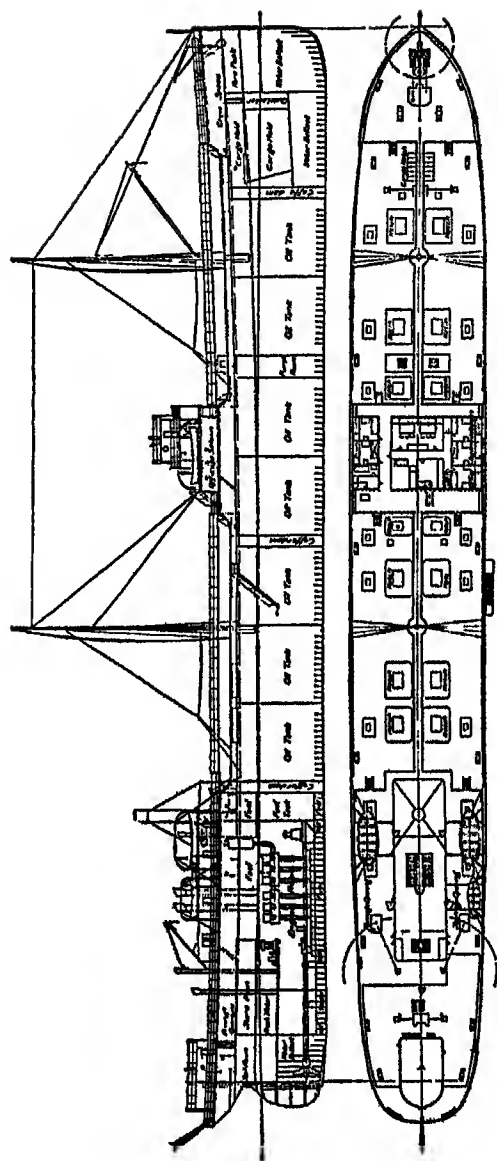
Numerous types of ocean-going cargo vessels have been designed for the transportation of special kinds of cargo or to accomplish some special purpose. Some vessels are constructed to transport bulk cargoes, their holds being clear except for widely spaced pillars. Some of them are "self-trimming" vessels with unobstructed holds extending all the way from the collision bulkhead to the boiler-room bulkhead. Cargo vessels which have their walls carried to the upper deck in unbroken line may have a clear hold without a lower deck, lower-deck beams, pillars, or other hold obstructions, but with arrangements to facilitate the trimming of bulk freight. In the "cantilever vessel" the frames, several feet before reaching the deck, bend inward and are attached to top girders which extend throughout the length of the vessel. The deck becomes a "turret" and is supported by the bent-in frames, while the hold is free from beams and all obstructions. There are also large iron ore vessels with clear holds and with raised inclines at the sides of the holds to facilitate mechanical unloading of the ore.

For the transportation of petroleum and sometimes of other oils in bulk, special "tank steamers" have been constructed. The portions of the vessel used for the stowage of the oil are subdivided into tanks by a strong, longitudinal bulkhead extending the entire length of the ship above the center line of the vessel and rising to the uppermost deck, and by transverse bulkheads. When these tanks are filled with oil, the fore-and-aft and side-to-side movement of the oil caused by the pitching and rolling



AMIDSHIP SECTION OF THE SS "OLYMPIC"

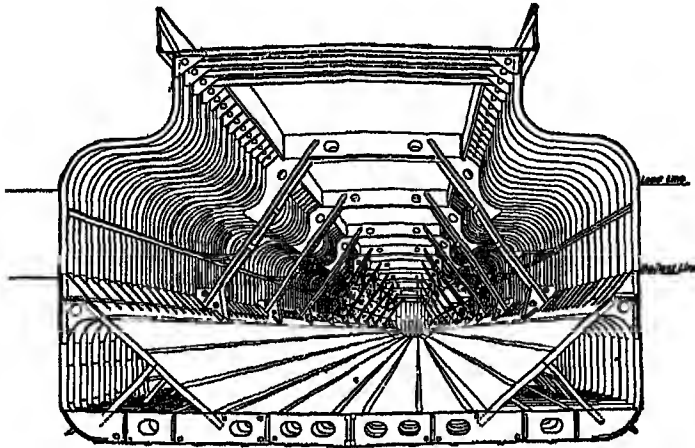
of the vessel at sea is reduced to a minimum To provide for the expansion of oil due to increase in temperature and to prevent explosion due to the forming of gases, each tank is also fitted with an expansion trunk Some tank vessels are very large, having numerous deep oil tanks, additional "summer tanks" be-



PROFILE AND UPPER-DECK PLAN OF AN OIL TANK CARRIER WITH DIESEL ENGINES

tween the main and after decks for the stowage of oil during the warmer seasons, a cargo hold, and also additional spaces below the "shelter deck" for the transportation of miscellaneous freight cargoes other than oil. An innovation in the construction of oil tankers is to fit an ordinary hull with cylindrical tanks which may be removed when it is desired to convert the tanker into an ordinary cargo carrier.

A special type of bulk-cargo vessel, known as the "steam schooner," has also been developed in the lumber trade of the



SECTION OF A SELF-TRIMMING TURRET STEAMER

Pacific coast of the United States. Although these vessels were originally the outgrowth of lumber schooners, the modern steam schooner depends wholly upon its engines. Their general structure, however, resembles that of sailing schooners. They have a greater proportionate beam than the ordinary steamer, great sheer forward, and a long unobstructed deck space between the forecastle and the bridge, which is located far aft. Large quantities of lumber are frequently carried on this open deck space as "deck loads."

Refrigerator vessels have been designed for use in the international trade in frozen and chilled meats and fresh fruits. Many passenger vessels are, of course, equipped with insulated rooms and the refrigeration facilities needed to preserve meats and

other perishables, but vessels assigned to the meat and fruit trades are more extensively fitted with insulated holds and refrigerating machinery. Refrigeration is an essential in sea as in land transportation.

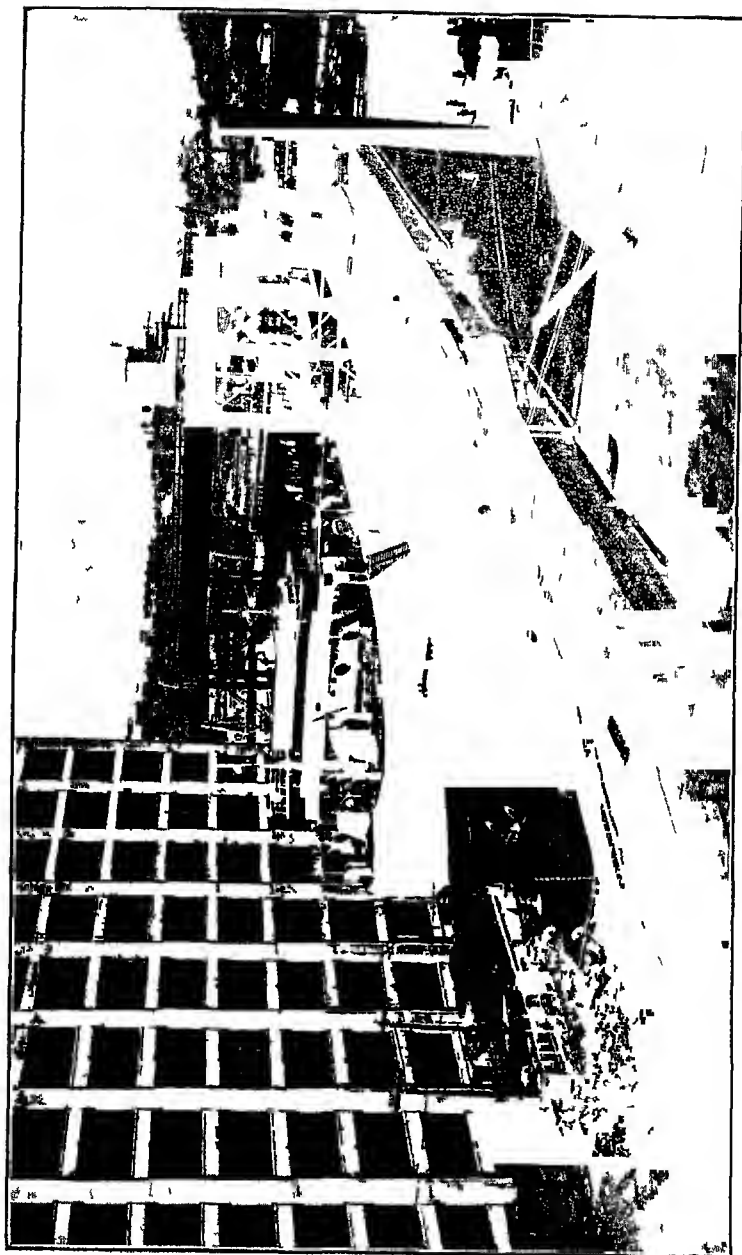
One of the most recent developments as to types of ocean carriers is the so called "seatrains" which transport cargo in railroad freight cars. The first of the three large vessels now operated by Seatrain Lines, Inc., was placed in operation between New Orleans and Havana, Cuba, in 1929. Later two new vessels were constructed under mail contract and construction loan arrangements with the United States Government.⁷ They are approximately 480 feet long and have beams of 63 feet and a speed of 16.5 knots or better. Each vessel has four decks which are equipped with standard gage railroad tracks. Although they are equipped with tank space for liquid cargo, they are primarily carriers of freight in railroad cars. The original vessel has a capacity of 95 cars and each of the new vessels has a capacity of 100 cars. They can operate only between ports equipped with special loading facilities, consisting of combination elevators and cranes.

These ocean-going seatrains differ from the car ferries of the Great Lakes not only as to size and the need for special facilities to load cars on the several decks, but also as to their status under the Interstate Commerce Act. The Commission has decided that they are not car ferries operated by railroads as a part or extension of their railroad service, nor are they common carriers by rail. They are common carriers by water engaged in transporting property partly by rail and partly by water under a common control, management or arrangement for a continuous carriage, and are therefore subject to all of the provisions of the Act applicable to such carriers.⁸

Technical progress in marine power development and vessel construction has made possible the close adaptation of ocean carriers to the varying requirements of the shipping industry. It has made possible the specialized vessels needed in particular trades, the economical, medium-sized tramps required in the chartered

⁷ 195 I.C.C. 219, Investigation of Seatrain Lines, Inc., July 11, 1933.

⁸ 195 I.C.C. 218, For provisions applicable to transportation partly by rail and partly by water see Chap. xxxiii.



SS "SEATRIN NEW YORK" LOADING AT HER TERMINAL AT HOBOKEN, NEW JERSEY

service, and the mammoth passenger liners required in the international passenger business. The first steamships of the Cunard Line had an average tonnage of 1,139 tons gross and an average speed of 8 to 10 knots per hour. In 1908 this line began operating the *Mauretania* which registered 30,696 tons gross and maintained a speed of about 25 knots. Afterwards it added to its fleet two even larger vessels, the *Aquitania*, with a gross register of 45,647 tons, and the *Berengaria* with a gross-register tonnage of 52,226 tons. The White Star Line similarly had its *Olympic* with a tonnage of 46,439 tons gross and the *Majestic* with a gross-register tonnage of 56,551 tons. The length of the *Majestic* is 915 feet 5 inches, its breadth 100 feet 1 inch and the depth 58 feet 2 inches.

The *Bremen* and *Europa* of the North German Lloyd Line, which were launched in 1929 and 1930, are 938 and 936 feet in length respectively and of 98 and 102 feet beam. The gross tonnage of the *Bremen* is 51,665 and of the *Europa* 49,746. For a while they in turn held the record for speed on the North Atlantic, but in 1933 the *Europa* surrendered its laurels to the *Rex* of the Italian Line which is 880 feet long and of 102 feet beam, and has a gross tonnage of 51,000. The *Rex* is fitted with turbines and has four screws. She obtained the record for speed at sea in August, 1933, when she made the run of 3,188 nautical miles from Gibraltar to Quarantine at New York in 4 days, 13 hours and 58 minutes, at an average speed of 28.96 knots per hour. During one day of the trip she maintained 29.61 knots per hour. This speed record was surpassed by the *Normandie* of the French Line on its first voyage, May 29 to June 3, 1935, which was made in 4 days, 11 hours and 42 minutes. The *Normandie's* length over-all is 1,029 feet, gross tonnage 79,280, and average speed 29.64 knots.

The *Queen Mary*, which is being constructed by the Cunard White Star Line and which will be put in operation in 1936, is 1,018 feet in length over-all and of 112 feet beam. Her gross tonnage will be about 73,000 tons, the total horse-power delivered to four propellers will be 180,000, and her estimated speed more than 30 knots an hour. This vessel, it is expected, will cross the Atlantic in four days.

While a spectacular effort is being made to construct a few

ships of great size and high speed, there is also a trend towards the construction and operation of vessels of somewhat less tonnage. Such vessels can be operated at sufficiently high speed, they cost less to operate, and a larger percentage of their passenger accommodations can be filled. They have less advertising value than the huge vessels, but they are more economical and efficient.

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CHAPTER II

TONNAGE AND THE MEASUREMENT OF VESSELS

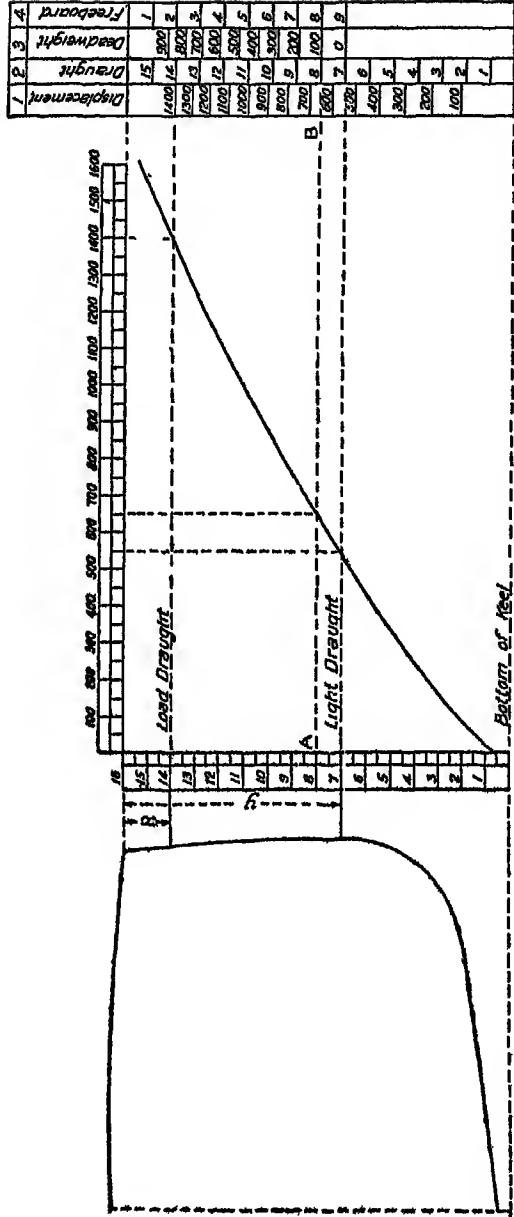
IN describing the various types of vessels, and in discussing ocean transportation, frequent use must be made of the words "ton" and "tonnage," and, in order to avoid confusion and error, it is necessary to keep clearly in mind the several meanings in which these terms are employed. Tonnage may refer either to the size of the vessel or to the amount of the ship's cargo, accordingly, there are two distinct kinds of tons—the vessel ton and the cargo ton. Each of these two kinds of tons is used with several different meanings.

Vessel tonnage is of four kinds—displacement, dead-weight, gross, and net. Each has a definite meaning and each has its particular uses.

✓DISPLACEMENT TONNAGE

The displacement tonnage of a vessel is its weight, and is equal to the weight of water displaced by the ship when afloat. Unless the term is especially qualified, the displacement of a merchant vessel is its weight when its crew and supplies are on board, but before any fuel, cargo or passengers have been taken on. This is the vessel's displacement "light," and is to be distinguished from its displacement "loaded," which is its weight when fully loaded to its maximum draft or deep-load line. A merchant vessel's "actual" displacement during a particular voyage is its weight when loaded to any given draft and varies with the amount of fuel and cargo and the number of passengers on board.

In rating war vessels, the term "normal" displacement is commonly used. Its meaning varies in the different countries, for, although their rules commonly include the vessel's full complement of officers, men and their belongings, and all general equipment, armament and machinery, they differ as to the allowance



DISPLACEMENT CURVE AND SCALE

of stores, fuel oil, coal and water on board when its displacement is normal¹ There is, likewise, no uniformity among the various countries as to the meaning of a war vessel's "light" displacement Its "full load" displacement, on the contrary, is calculated with substantial uniformity throughout the world and corresponds to the usual meaning of a merchant vessel's displacement "loaded" A naval vessel's "actual" displacement, of course, refers to its weight with everything on board when equipped for a particular voyage, and varies from day to day

The displacement of a vessel is expressed in tons of either 2,240 or 2,204 62 pounds avoirdupois, according to whether the English or metric system of measurement prevails In the United States the displacement tonnage may be found by dividing the contents in cubic feet of the part of a vessel's hull that is below the water line by 35, because a cubic foot of sea water weighs 64 pounds, or one thirty-fifth of a ton of 2,240 pounds avoirdupois The cubical contents is accurately determined at the time of the vessel's construction by means of special mathematical rules² Since a vessel is not a parallelopiped, i e, not box-shaped, its cubical contents cannot be determined by a simple multiplication of length, breadth and depth The marine architect is obliged to determine the ship's "block coefficient" or "coefficient of fineness," which is the ratio of the actual contents of the submerged portion of the vessel's hull to the contents of a parallelopiped of the same length, breadth and depth When this coefficient is known, the vessel's displacement may be determined by multiplying the product of its length, breadth and depth by its coefficient of fineness and dividing that product by 35 The coefficient may vary anywhere from 0 8 in case of a full-shaped slow freighter to 0 4 in case of a racing yacht

When determining a vessel's displacement "light" and "loaded," shipbuilders usually prepare a "displacement curve" and scale, such as is shown in diagram on page 26 Knowing the draft of his vessel, a glance at the ship's displacement curve and scale will tell the captain substantially what the actual displacement of his vessel is on any given voyage

¹ E R Johnson, *Measurement of Vessels for the Panama Canal* (1918), p 104

² Thomas Walton, *Know Your Own Ship* (1924), Chap x

The displacement tonnage of merchant vessels is chiefly used in their construction. It is also of use in their loading and operation, for the difference between displacement light and displacement loaded indicates the maximum weight of cargo, passengers and fuel that the ship may take on board, and the difference between displacement light and the tonnage of the ship's actual displacement indicates the weight of whatever the ship contains at any given time other than crew and supplies. The "normal" displacement of naval vessels has the additional use of serving as the basis for officially rating or expressing the size of war craft, and the actual displacement of war-ships, other than transports, colliers, supply ships and hospital ships serves as the basis upon which such vessels pay tolls at the Panama Canal.

DEAD WEIGHT TONNAGE ✓

The carrying capacity of a merchant vessel is sometimes expressed in terms of its *dead-weight tonnage*, which represents the maximum weight of cargo, passengers and fuel that it is able to carry when loaded to its deep-load line. It is the equivalent of the difference between the vessel's displacement "light" and its displacement "loaded" and is determined by subtraction of the one from the other. The actual dead-weight on board at any given time will, of course, vary from voyage to voyage, but can be readily determined with substantial accuracy from the displacement curve and scale mentioned in connection with displacement tonnage. Knowing the draft to which his vessel is loaded, the captain can read the actual dead weight on board from the curve and scale which is prepared when the vessel is constructed. (See Diagram page 26.)

Dead-weight tonnage is expressed in terms of either the long ton of 2,240 pounds or the metric ton of 2,204.62 pounds. In ocean navigation it serves as the usual basis for the charter rates paid when vessels are operated on time charters. It is also of use in the loading and transportation, in vessel-load lots, of certain heavy, bulky commodities, such as coal and iron ore, and in the construction of vessels designed for such services, for, knowing the amount of fuel needed to operate over a particular route, the dead-weight tonnage discloses to the master of the vessel the maximum weight of cargo that may be shipped. The term dead-

weight tonnage is ordinarily not used in connection with express steamers, combination passenger and freight vessels, or vessels operated in a regular freight line service, for vessels of that type are rarely loaded to their deep load line, and the prime consideration at the time of their construction is seldom the attainment of maximum capacity for heavy or so called "dead-weight commodities"

GROSS TONNAGE ✓

The *gross tonnage* of a merchant vessel is its total measured cubic contents expressed in "tons" of 100 cubic feet or 2.83 cubic meters.³ The actual cubical contents of any particular space in a vessel is measured in accordance with prescribed methods or formulæ which were originated by Mr George Moorsom, of England, and were first incorporated in the British measurement law of 1854, and later in the measurement rules of all the leading maritime countries of the world. The lack of uniformity in gross tonnage results, not from the methods of measurement employed, but from differences as to the number of vessel spaces that are entirely exempted from measurement. Every country has its own national measurement rules which specify the portions of a vessel that are excluded from gross tonnage, and at the two great inter-oceanic canals—the Suez and Panama—special rules differing widely from the national measurement rules of any of the maritime countries are enforced. Since certain spaces are excluded from measurement it, moreover, follows that in practice the

³ This method of stating gross register tonnage dates from 1854. To secure a uniform practice in measuring and registering vessels, the British Government, in 1852, adopted a method of measuring the cubical capacity of hulls that Mr George Moorsom had worked out. The Admiralty, not wishing to change the statistics of the tonnage of the British marine more than was necessary, instructed Mr Moorsom to submit a plan of applying his method in such a way as to cause a minimum change in the existing registry of ships. Mr Moorsom found that the total registered tonnage of the British merchant marine as then registered was 3,700,000, and he found that by the application of his system of measurement the total capacity of the hulls of the British fleet was 363,412,456 cubic feet. "If," said he, "the real total capacity in cubic feet is divided by the total registered tonnage, the dividend will be the figure by which the capacity in cubic feet must be divided in order to produce this registered tonnage." The ratio of existing tonnage (3,700,000) to Moorsom's figures for capacity (363,412,456) was 98.22, but for the purpose of easy calculation the British Government adopted a divisor of 100 instead of 98.22, and this figure was incorporated in the Merchant Shipping Act of 1854.

gross tonnage of a vessel does not represent its entire enclosed cubical contents

The national gross tonnage rules of the United States which are applied by the surveyors of the Customs Service and interpreted by the Bureau of Navigation and Steamboat Inspection, Department of Commerce, provide that the following spaces in a vessel shall be exempted from measurement

1 Sheltered places or superstructures with openings at the sides or ends This exemption was the result of the way in which the rules were interpreted by the United States Commissioner of Navigation on September 5, 1914

2 So-called shelter-deck spaces, i e, spaces beneath a "shelter deck" with approved "tonnage openings" This exemption was not allowed prior to March 16, 1915, and is also the result of the interpretation of the national measurement rules by the Commissioner of Navigation Both of these exemptions had for many years been granted under the measurement rules of Great Britain, and had also been accepted in Germany since 1895, when the endeavor to induce Great Britain to measure all enclosed superstructures and shelter-deck spaces was abandoned

3 Passenger accommodations in tiers of superstructures over the first tier above the upper deck

4 Hatchways up to one-half of 1 per cent of the vessel's gross tonnage

5 Galleys, bakeries, toilets and bath-houses above decks

6 Spaces above decks occupied by the ship's machinery or for the working of the vessel

7 "Light and air and funnel space over the engine and boiler room to the extent that such space is above the upper deck, or the 'shelter deck' when it is taken as the uppermost full-length deck, except when special request is made by the shipowner to have the space measured"

8 Domes and skylights, companionways (except portion used as smoking room), and ladders and stairways located in exempted spaces⁴

9 Double bottoms for water ballast since March 2, 1895, and other spaces adapted only for water ballast since February 6, 1909

10 Open spaces occupied by deck loads

Enclosed spaces other than those especially exempted are measured in accordance with the Moorsom rules which were adopted in the United States in 1864, and the cubic contents in cubic feet divided by 100 represents the official gross-register tonnage of an American vessel. It understates a vessel's real gross capacity as also does the gross-register tonnage determined in the

⁴ E. R. Johnson, *Measurement of Vessels for the Panama Canal*, p 58

principal foreign maritime countries. A special code of measurement rules was therefore formulated for the Suez Canal by an International Tonnage Commission in 1873, with a view to arriving at a gross tonnage that discloses real gross capacity. The Suez rules do not include all enclosed spaces in a vessel's gross tonnage, but result in a figure considerably above the gross register tonnage provided for in the measurement rules of Great Britain, Germany, or the United States as at present interpreted. The special gross tonnage rules, in accordance with which all vessels navigating the Panama Canal are measured, were based largely upon the principles that controlled in framing the Suez Canal rules, but certain changes were necessary so as to adapt them more closely to the many variations in present-day vessel construction, and so as to ascertain a gross tonnage that even more closely approximates real gross capacity.⁵

It is in terms of gross register tonnage that the official mercantile marine statistics of the United States are published, and merchant vessels the world round are officially listed in terms of their gross- and net-register tonnages and their principal dimensions. In some foreign countries, moreover, the gross register tonnage of merchant vessels is utilized as the basis for certain ship subsidies. The classification of American vessels for awarding mail contracts depends in part upon gross-register tonnage. It also serves as a basis for vessel dockage charges at some ports. The primary purpose of computing gross tonnage, however, is to use it as the basis for determining net tonnage.

✓ NET TONNAGE

The *net tonnage* of merchant vessels was originally intended to represent their total cubic contents available for cargo and passengers, expressed in tons of 100 cubic feet or 2.83 cubic meters each. It is ascertained by deducting from a vessel's gross tonnage the cubic contents of certain spaces that are specified in the measurement laws and rules of the various maritime nations or in the measurement rules applicable at the Suez and Panama canals. As gross-register tonnage varies throughout the world and understates a vessel's gross capacity, so also does the official net-

⁵ E. R. Johnson, *Measurement of Vessels for the Panama Canal*, pp. 225-242.

register tonnage of a vessel as determined in the maritime countries vary and understate its real net capacity for carrying cargoes and passengers

The deductions made from gross-register tonnage in order to arrive at net-register tonnage under the national measurement rules of the United States are as follows

- 1 Spaces occupied by the propelling machinery and fuel
- 2 Spaces occupied by or appropriated to the use of the crew, officers and master subject to the navigation laws, which specify that a minimum crew space varying from 72 to 120 cubic feet and from 12 to 16 square feet of floor space per man must be provided on American vessels
- 3 Spaces used exclusively for the working of the helm, capstan and anchor gear, unless they are located above decks and consequently have been excluded from gross tonnage
- 4 Spaces used for keeping charts, signals, and other instruments of navigation
- 5 Spaces occupied by the donkey engine and boiler if located below decks and connected with the main pumps of the vessel
- 6 Spaces required for boatswain's stores
- 7 Galleys, bakeries, toilets, and bathrooms for the accommodation of the officers and crew, when situated below decks
- 8 Spaces on sailing vessels used for the storing of sails not exceeding $2\frac{1}{2}$ per cent of the gross tonnage

The principal deduction in the case of all vessels propelled by engines is the space occupied by propelling machinery and coal bunkers or fuel oil tanks. While the engine and boiler rooms can be readily measured because they occupy fixed spaces, an obvious difficulty is encountered in measuring the fuel spaces which in many instances are variable. Many vessels, for example, are fitted with movable partitions that may be shifted so as to enlarge or contract either the coal bunkers or the cargo holds as is desired on a particular voyage. A general or average rule for deducting propelling machinery and fuel spaces is therefore needed. Under the national measurement rules of the United States the so-called "percentage rule" is applied to some vessels and the so-called "Danube rule" to others. The former provides that if the space occupied by the engine and boiler rooms of a screw-propelled vessel is above 13 per cent and under 20 per cent of the vessel's gross tonnage, the combined deduction for propelling machinery and fuel spaces shall be 32 per cent of the gross tonnage. The

corresponding percentage rule for vessels propelled by paddle wheels is that if then propelling machinery occupies over 20 per cent and under 30 per cent of the gross tonnage, a deduction of 37 per cent of a vessel's gross tonnage shall be made. The Danube rule, on the contrary, is applied to vessels the engine and boiler rooms of which do not come within the 13 to 20 or 20 to 30 per cent limits. It provides for a deduction of the actual spaces occupied by the propelling machinery plus 50 per cent in the case of vessels propelled with paddle wheels, and plus 75 per cent in the case of screw-propelled craft.

A large proportion of all ocean-going vessels are constructed so as to come within the percentage rule, because it usually results in a larger deduction than the Danube rule provides and in a deduction of more space than is actually occupied by propelling machinery and fuel bunkers. The net register tonnage of American vessels is consequently in many instances an understatement of actual tonnage, and not all vessels are treated alike. The same is true of Great Britain, where the rule originated in 1854 and is still applied. The rule is also followed in Germany and many other foreign countries. Being based upon gross-register tonnage, the understatement of tonnage as registered in the United States and in other shipping countries is further increased by the exemption from measurement of various spaces which are in fact available for cargo or passengers.

As the special gross tonnage rules applied at the Suez and Panama Canals were so formulated as more nearly to disclose the real gross capacity of vessels, so also were the rules governing deductions of spaces not available for cargo or passengers devised with a view to disclosing the real net capacity. Especially was this the purpose in promulgating the "Panama Canal measurement rules," which differ from the Suez rules in some respects. Both the Panama and Suez rules differ from the official tonnage rules of the principal countries in that they discard the percentage rule for deducting machinery and fuel spaces and substitute the Danube rule with the option of the actual measurement of such spaces in the case of vessels equipped with fixed fuel bunkers. The average deductions made from gross tonnage in arriving at the net tonnage of the Panama Canal operation is 30 per cent. The average deduction from gross tonnage under the Suez rules

is 28 per cent. In contrast with this, the deductions under the national measurement rules of the United States, Great Britain and Germany are 40 per cent or more from a gross tonnage that is less than it would be if determined by the Panama Canal rules. The deductions from gross tonnage made in accordance with the American measurement rules are further shown in the American certificate of admeasurement reproduced in Form 1.

The net-register tonnage of merchant vessels is highly important alike to their owners, to governmental authorities who administer the navigation laws, and to commercial concerns of various kinds. Net-register tonnage is the basis for tonnage taxes and other tonnage dues the world round, and commercial charges, such as those for towage, dockage and wharfage, are also at times based on net-register tonnage. The official statistics of entrances and clearances published by the United States and most foreign governments are stated in terms of net register tonnage. Time charter rates, when not based on dead-weight tonnage, are sometimes on net-register tonnage, and tolls at some canals, such as the Kiel and Manchester canals, are based in part on this form of tonnage. The incentive to understate net-register tonnage in the various maritime countries has consequently been strong, and when some of them follow that policy, it is difficult for the others not to do likewise. The net tonnage ascertained in accordance with the Suez and Panama Canal measurement rules are important, because they serve as the principal basis for the tolls charged at these waterways. Suez net tonnage is the basis for the vessel tolls paid by both merchant and naval craft to the Suez Maritime Canal Company, and Panama net tonnage is the basis of the tolls paid by merchant vessels and by army and navy transports, colliers, supply ships and hospital ships at Panama.

CARGO TONNAGE

Quite distinct from the different kinds of vessel "tons" and tonnage mentioned above are the various forms of cargo "tons" and tonnage in terms of which the amount of cargo on board an ocean vessel and its cargo capacity are expressed. Cargo tonnage may be stated either in weight or measurement tons. A weight or avoirdupois ton, moreover, may be a long ton of 2,240 pounds, a metric ton of 2,204.627 pounds, or a short ton of 2,000 pounds.

Oct. 10, 1919

Certificate No. _____

Oct. 10, 1919

Measurement of Tonnage, 2nd Edition, Rev. April, 1914, at St. Louis, Mo.

THE UNITED STATES OF AMERICA

DEPARTMENT OF COMMERCE
BUREAU OF NAVIGATION

Port of _____

_____ 79

CERTIFICATE OF ADMEASUREMENT

(Section 4143, Revised Statutes—Section 77, Title 46, United States Code)

I certify that an admeasurement has been made of the _____
called the _____ of _____
which was built in the year 19 _____ at _____, State of _____
of _____ that she has _____ deck, _____ mast
_____ head, and _____ stern;
that her register length is _____ 77 feet,
her register breadth is _____ 77 feet,
her register depth is _____ 77 feet,
her height under spar deck is _____ 77 feet,
and that her tonnage is as follows:

	Tons	Net
Capacity under tonnage deck _____		
Capacity between decks, above tonnage deck _____		
Capacity of inclosures on the upper deck, viz: Forecastle _____, bridge _____, poop _____, break _____ tumblehouse _____, side houses _____, chart house _____ radio house _____, access hatchways _____, light and air _____		
GROSS TONNAGE		
Deductions under Section 4143 Revised Statutes, as amended (Section 77 Title 46 United States Code): Crew space _____, master's cabin _____, steering gear _____, anchor gear _____, boatswain's stores _____, chart house _____, donkey engine and boiler _____, radio house _____, storage of sails _____, propelling power (actual space _____)		
TOTAL DEDUCTIONS		
NET TONNAGE		
The following described spaces and no others have been omitted, viz: Forepeak _____, aftpeak _____, other spaces (except double bottoms) for water ballast _____, open fore- castle _____, open bridge _____, open poop _____, open shelter deck _____, cabins _____, compartments _____, galleys _____, skylights _____, wheelhouse _____, water-closets _____, anchor gear _____, condenser _____, donkey engine and boiler _____, steering gear _____, light and air over propelling machinery _____, other machinery spaces _____		

Surveyor.

I agree to the above description and admeasurement.

Collector of Customs.

Small American steam motor, which shall, or so soon as it is
a motor and give tonnage of such peak tank and other than water ballast, which is included.
Every kind of all buildings to be used as such.
If a motor is to be used as such, it shall be the responsibility of the Surveyor to verify the
tonnage of such motor and give tonnage of such motor and other than water ballast, which is included.
Every kind of all buildings to be used as such.

It is assumed, unless otherwise stated, that the tonnage shall be as shown in last column
of the table in these cases: (1) For the purpose of the tonnage of such motor and other than water ballast, which is included.
It is assumed, unless otherwise stated, that the tonnage shall be as shown in last column
of the table in these cases: (1) For the purpose of the tonnage of such motor and other than water ballast, which is included.
It is assumed, unless otherwise stated, that the tonnage shall be as shown in last column
of the table in these cases: (1) For the purpose of the tonnage of such motor and other than water ballast, which is included.

The long ton is of chief importance in the overseas trade of the United States in so far as goods are shipped as weight cargo, and the metric ton in the trade of such foreign countries as adhere to the metric system. The short ton, although commonly used in the shipment of freight by rail in the United States, is only occasionally used in the overseas trade.

Much ocean freight, however, is not shipped by weight but in units of measurement tons, usually of 40 cubic feet each. Light package freight is frequently shipped as "measurement cargo," which means that its quantity is stated in measurement tons. It is a paradoxical fact that a vessel may carry a larger number of "tons" of light package freight than of heavy bulk cargo.

The relationship between the various kinds of vessel and cargo tonnages cannot be fairly expressed in terms of an average, because it is influenced greatly by the many different types of vessels operating on the high seas, by the kinds of cargo carried by them, and by the particular gross and net measurement rules in accordance with which the register tonnages are ascertained. National measurement rules make registry tonnage less than actual tonnage. This is done to lighten the burden of tonnage duties and port charges paid by shipping.

American shipping includes both "documented" and "undocumented" craft. All self-propelled and sailing vessels operating under the American flag are legally required to be listed and documented for the United States Government by the Bureau of Navigation and Steamboat Inspection. Barges, flatboats and like craft not self-propelled, or fitted with sails are not required to be documented unless they carry passengers or are engaged in the trade with contiguous foreign countries, and harbor craft, such as lighters and floats, are likewise not required to be documented. Documented vessels engaged in the foreign trade and the whaling industry are "registered", those employed in the inland and coastwise commerce are "enrolled", and those of less than 20 tons measurement are "licensed."

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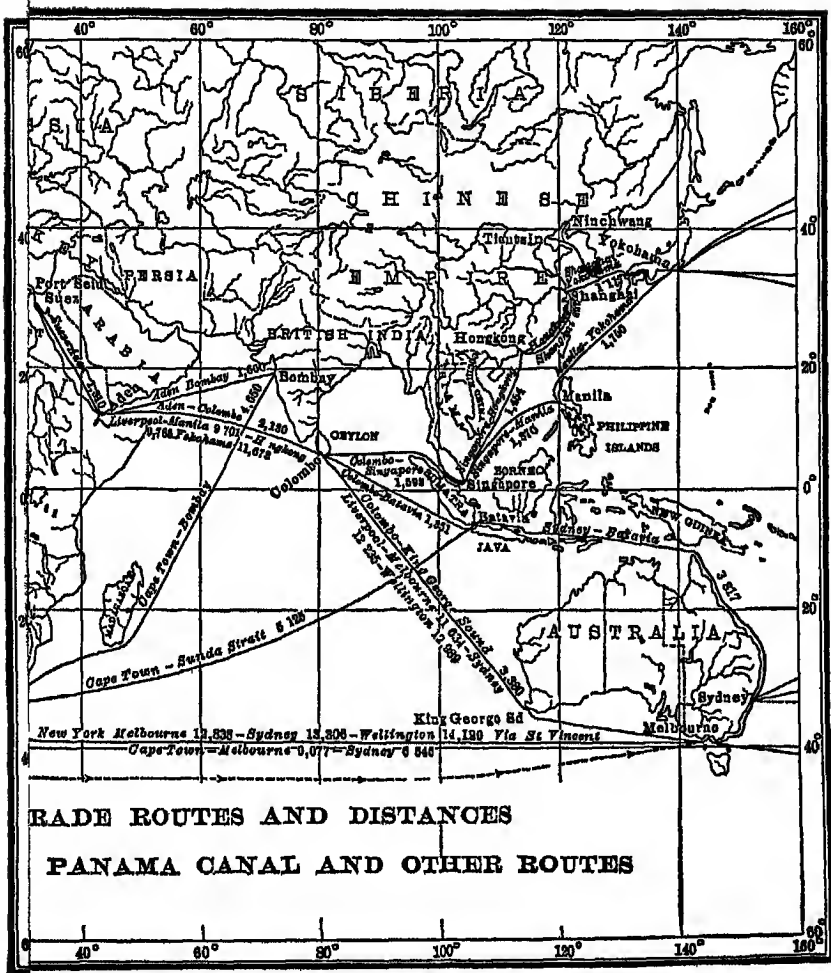
CHAPTER III

OCEAN ROUTES AND CANALS

THE oceans provide the great highways of international trade, which, from port entrance to port entrance, are free and open to all who observe the international rules of the road at sea. Although ocean traffic follows certain rather definite routes, no nation, and of course no company, can convert any route into an exclusive right of way, such as a railroad corporation possesses. A few short sections of some frequented routes of ocean traffic—the Panama, Suez, Corinth, and Kiel canals—are artificial, and subject to tolls, but their use is normally open to all upon equal terms. This simple but fundamental fact, that the sea is an open highway, causes ocean transportation to be governed by laws different from those controlling the railway service, and the main problems of transportation economics—competition, rates and fares, and government regulation—are radically affected by this difference between the railway and the ocean highway. The rapid growth of the regular steamship line service, which is more readily controlled by ocean conferences and agreements and more easily amenable to government regulation than the tramp service, i.e., the service rendered by independent, chartered vessels, has lessened the difference between ocean and rail transportation somewhat, but has by no means placed them on a common footing.

ROUTING CONSIDERATIONS

The routes followed by ocean ships are determined mainly by the location and traffic importance of the areas between which trade is being carried on, by the sphericity of the earth, by the size of the land masses lying between the trading areas, and by the location of fuel stations and the cost of coal or fuel oil. The routes followed by sailing vessels are determined also by the location and direction of ocean currents and prevailing winds. Among the minor causes influencing the routes of both steamers



and sailing vessels may be mentioned the absence or prevalence in certain areas of the sea of floating ice, or of severe storms at different seasons of the year

On account of the spherical shape of the earth, the shortest distance between any two places on the earth's surface is the arc of a great circle connecting the two points. This fact influences nearly all ocean routes, and particularly those across the North Atlantic and the North Pacific. For instance, Yokohama and San Francisco are in practically the same latitude—i. e., Yokohama lies directly west of San Francisco, but the short route between the two places, being the arc of a great circle, curves northward to the Aleutian Islands. It is only upon a globe that the relative length of ocean routes can be correctly shown, but the location of the principal ocean routes is indicated and their mileage lengths are stated on Map 1 drawn on the Mercator projection.

The steamer can usually take the short route, but the sailing vessel must shape its course with reference to the currents and prevailing winds, although by so doing the distance may be greatly increased. In sailing from New York to Rio de Janeiro, for example, a vessel will steer eastward with the winds and currents to the vicinity of the Azores, or nearly across the Atlantic, where, a longitude east of Cape St. Roque having been reached, the ship will turn toward the South, and, with the aid of the northeast trade winds north of the equator and of the southeast trades of southern latitude, will readily make the port of Rio de Janeiro.

Ocean routes are many in number and of different degrees of importance, there being, as in the case of railroads, trunk lines and auxiliary routes, main lines and feeders. A description of the most important routes and of the Suez and Panama Canals follows.

THE NORTH ATLANTIC ROUTE

The ocean trunk line having the heaviest freight and passenger traffic is the one connecting the northeastern seaports of the United States with the entrance to the English Channel. Upon this North Atlantic trunk route more than one sixth of the world's entire shipping is employed, it being the direct route between the principal commercial countries of the world. In or-

der to conform as closely as possible to a great circle, this route skirts the coast of North America northward to the Banks of Newfoundland, and then curves across the Atlantic. The branch lines which unite in this North Atlantic trunk route reach American ports from Canada to the Caribbean, and European ports from the Baltic to the Mediterranean. Vessels plying between Europe and Gulf and West Indian ports take a course but slightly south of this route, and pass comparatively close to the coast of the United States. The route from Great Britain to the Panama Canal via New York is only 323 miles longer than the most direct course, and vessels plying between the West Indies or Central America and northern European ports sometimes call at Hampton Roads to replenish their coal supplies.

The North Atlantic route connects the eastern and Gulf ports of the United States and the eastern ports of Canada with the ports of Europe, Great Britain and Mediterranean Africa. Eastward there flow the exports of farm products, raw materials, semifinished manufactures and a substantial quantity of finished manufactures. The volume of westbound freight traffic has normally been smaller because the imports received from Europe and Great Britain have been less in tonnage as well as in value than the exports shipped from the United States and Canada. They consist more largely of manufactured products, but a wide range of commodities is included and the total imports received from Europe may probably increase in the future. The North Atlantic route, moreover, is the world's greatest ocean passenger route. No other route can at present provide the heavy operating returns that are essential to the profitable operation of the large fast passenger steamers that regularly ply between the large eastern ports of the United States and the ports of western Europe and Great Britain. The heaviest international mail and express shipments are also made over this route. The large volume and the nature of much of the aggregate traffic moving over the North Atlantic route has aided the growth of regular line traffic.

THE SUEZ CANAL ROUTE

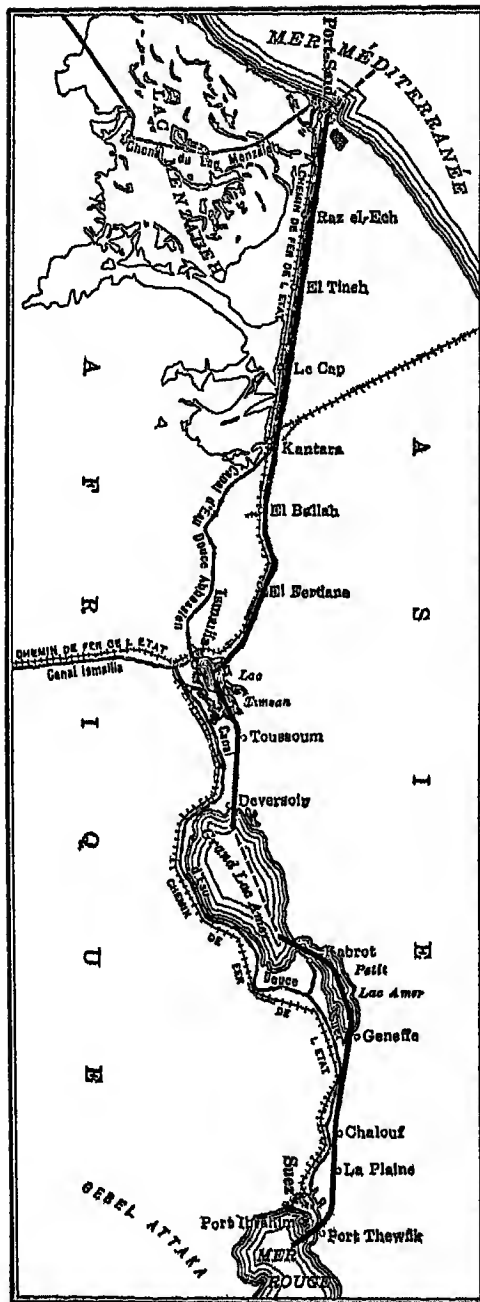
The ocean trunk line ranking next to the one across the North Atlantic is the route from the eastern United States and from

western and southern Europe via the Mediterranean and the Suez Canal to India, the East Indies, China and Japan. Before the Suez Canal was opened in 1869, the ocean commerce of Europe and the United States with eastern countries was carried in sailing vessels around the Cape of Good Hope, and was small in comparison with the great volume of traffic now passing through the Suez Canal. As sailing vessels cannot navigate the Red Sea, only steamers use the Suez Canal route.

This ocean trunk line has an especially large number of branch lines or feeders both east and west of the canal. At Gibraltar the routes from the United States, Great Britain, and western European countries unite in a single route for Suez, in the Mediterranean this route is connected by branch routes with the ports of Southern Europe, at Aden, although the main ocean track proceeds to Colombo, some vessels branch off southward to Zanzibar, Mauritius and Delagoa Bay, others turn northward to the Persian Gulf, and still others proceed northeastward to Bombay and Karachi. At Colombo the trunk route is again divided into branch routes extending northward to Calcutta and Burma, southward to Australia, and eastward to the East Indies, Singapore, Manila, and the ports of China and Japan.

Vessels navigating this route pay tolls for passing through the Suez Canal, in accordance with the rights of the Suez Canal Company under the provisions of its concession of 1856 and the international treaty of 1888. In 1935, merchant vessels were charged a toll of 5 francs, 75 centimes gold per net vessel ton, if loaded, and 2 francs, 87½ centimes per ton if in ballast, and if there are passengers on board, an additional toll of 10 francs for each passenger above twelve years of age and 5 francs for each passenger between the ages of three and twelve is collected. So greatly, however, does the Suez Canal reduce sailing distance and time as compared with the route around South Africa, that, during 1929, 6,274 vessels measuring 33,466,000 tons net tonnage, navigated the canal route to and from points beyond Suez. In 1934 the transits were 5,663 and the net vessel tonnage was 31,750,802, the temporary decline being due to the business depression.

The Suez Canal was promoted by the famous French engi



MAP 2. GENERAL PLAN OF THE SUEZ CANAL

neer, Ferdinand de Lesseps, and was built by a private company, the Suez Maritime Canal Company, at an original cost of £16,632,953 (about \$80,000,000). Enlargements and improvements required additional investments in later years, and the total inventory value of the company's properties has risen to about \$200,000,000, or about one half the original investment at Panama. The construction difficulties were small in comparison with those encountered in the building of the Panama Canal. Its length from Port Said to Suez is 87 nautical, or 100 English, miles, but relatively little expensive excavation was necessary because its route follows low ground, and two easily formed inland lakes could be utilized.

It is a sea-level waterway that had an original depth of 26 feet 3 inches, and a bottom width of 72 feet 2 inches. These dimensions were in the main adequate for two decades, as the draft of the vessels engaged in the Oriental trade did not reach the authorized maximum of 24 feet 7 inches until 1880. Although numerous improvements had meanwhile been made, the general enlargement of the canal's dimensions was not inaugurated until 1887. Since then the depth has gradually been increased. By 1908, a depth of 32 feet 9 inches was attained, and a maximum vessel draft of 28 feet was authorized, and in 1909 a new program that has since given a depth of 36 feet 1 inch and an authorized vessel draft of 31 or 32 feet was adopted. Further improvement was authorized in 1912, and at present vessels having a draft of 33 feet are permitted to navigate the canal. Plans for giving greater depth of canal and greater vessel draft have been adopted but have not yet been carried out.

The Suez Canal is still the property of the original company. In 1875 the British Government through Lord Beaconsfield, purchased 176,602 shares from the Khedive of Egypt, and although the British Government, according to latest reports, does not own a majority of the total 400,000 shares of the company, it has a controlling position in the affairs of the canal.

Great Britain's rights as a stockholder have not been exercised to the exclusive advantage of British shipping, nor may the French company which operates the canal legally discriminate in favor of French shipping. The canal is an international

waterway, and in times of peace is open to the vessels of all nations on terms of equality. The second concession, which the company obtained from the Viceroy of Egypt, January 15, 1856, provides that the canal shall be open to all as a neutral highway "without any exclusive distinction or preference of persons or nationalities." The international convention of October, 1888, signed by Great Britain, Germany, Austria, Spain, France, Italy, the Netherlands, Russia and Turkey, likewise provides that the canal shall "always be free and open, in times of war as in times of peace, to every vessel of commerce or of war without distinction of flag." Great Britain made certain reservations as to the use of the canal by vessels of war, but these were modified by an additional special agreement—the Anglo-French agreement of April 8, 1904.

The great commercial advantages which the world has obtained from the construction of the Suez Canal are due to its service as a short route to the East for merchant steamships, which otherwise would be obliged to navigate the South African route. The vessels which the canal draws from Europe and the United States branch off in different directions at Aden, at Colombo, and again at Singapore, and proceed to widely scattered Asiatic, African, and Australasian destinations.

THE PANAMA CANAL ROUTE

As the opening of the Suez Canal in November, 1869, created a great interocean route, so the opening of the Panama Canal in August, 1914, provided another that is destined to play an important rôle in the world's commerce. The Panama route is in a sense but an extension of the Caribbean route, much freight having formerly been transhipped between the Atlantic and Pacific by rail across the Isthmus at Panama and at Tehuantepec. The opening of the canal, however, made the Panama route a distinct ocean highway. It not only obtained the traffic which was formerly transhipped by rail, but also a portion of the traffic which was shipped via the South American, South African, and Suez Canal routes. Moreover, it will to an increasing extent in the future stimulate the international commerce of the world and the intercoastal trade of the United States, and in that way create much new ocean traffic.

As at the Suez Canal, so also at Panama, all merchant vessels are required to pay tolls. The Panama toll on merchant ships with cargo or passengers on board is \$1 20 per ton upon the vessel's net tonnage, and on vessels in ballast 40 per cent less, or 72 cents per ton. These tolls, based on net vessel tonnage as ascertained in accordance with the special measurement rules of the Panama Canal, are subject to a statutory limitation¹ that the tolls collected from any vessel shall not exceed a maximum of \$1 25 per net ton based on its net-register tonnage as ascertained in accordance with the national measurement rules of the United States. These rules give vessels a lower tonnage, and thus lower tolls, than result from applying the Panama rules. Congress should provide that only the Panama rules shall apply.

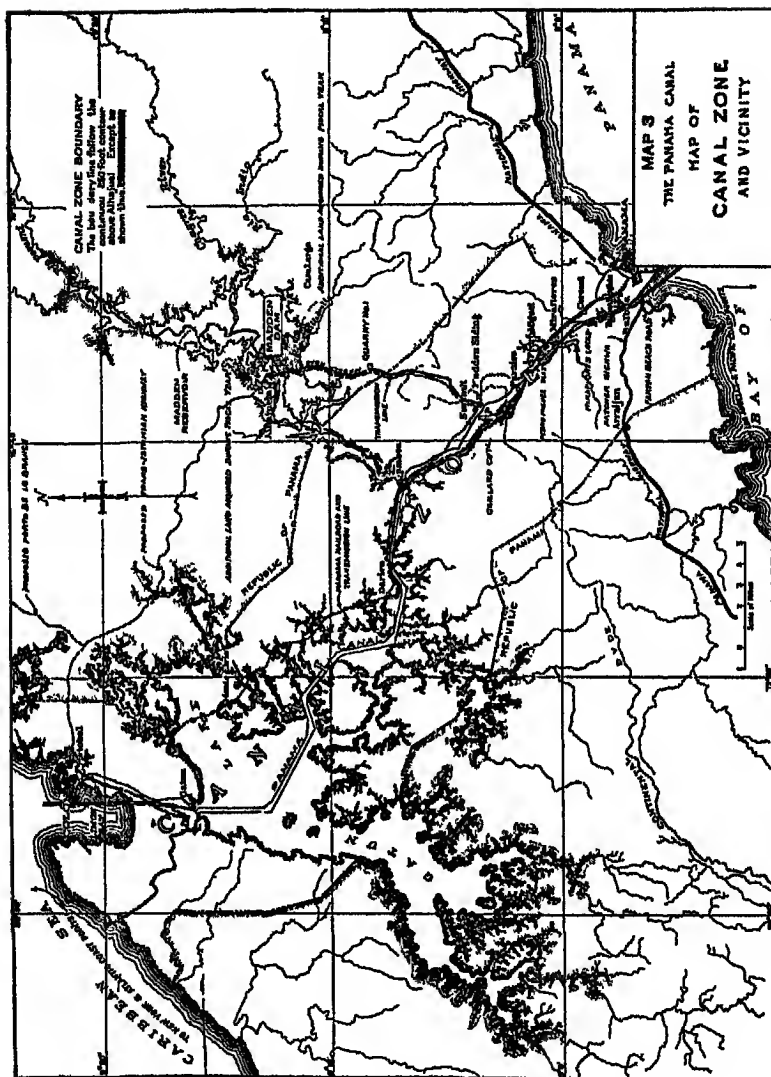
The Panama Canal extends from Cristobal on Limon Bay on the Caribbean side to Balboa on the Bay of Panama. Its course is nearly north and south across the isthmus which here extends northeast and southwest. The Pacific end of the canal lies about 20 miles east of its Atlantic end. The canal is 43 84 nautical miles—about 50 statute miles—in length, and has a minimum depth of 41 feet and a minimum bottom width of 300 feet. It is a lock canal.

The initial expenditure of nearly \$400,000,000 for the concession and in the construction of the Panama Canal and its military defenses was large in comparison with the relatively small cost and heavy traffic of the Suez Canal, but the investment was fully justified. The economic and naval value of the Panama Canal is undoubted.

The economic value of the canal depends fundamentally upon the influence which it exerts over ocean steamship routes. Three important ocean routes—the South American or Magellan, the South African, and the Suez—are directly affected by the canal, the canal itself creates a fourth trunk line route, and indirectly the canal has influenced the volume of traffic which moves over the remainder of the eight principal ocean highways. It is also taken by the through traffic which was formerly transferred between the Atlantic and the Pacific by rail across the Isthmuses of Panama and Tehuantepec.

Traffic is routed via Panama because of the saving in distance

¹ Panama Canal Act of Aug. 24, 1912



and time which the canal makes possible. The distance from New York to San Francisco is 7,873 nautical miles shorter via Panama than by way of the Straits of Magellan, and the saving in distance between New York and Valparaiso, Chile, is 3,747 miles, Iquique, the great Chilean nitrate port, 5,139 miles, and Guayaquil, Ecuador, 7,405 miles. The distance from New York to Yokohama, via Panama, is 3,768 miles shorter than via the Suez Canal, and the saving on voyages to Shanghai is 1,876 miles, to Sydney, 3,932 miles, and to Wellington, 2,493 miles. The accompanying table shows how much is saved by vessels proceeding from Liverpool, as a typical north European port,

REDUCTION IN NAUTICAL MILES EFFECTED BY THE PANAMA CANAL²

To	FROM			
	New York	Savannah	New Orleans	Liverpool
San Francisco ¹	7,873	8,267	8,868	5,666
Honolulu ¹	6,610	7,004	7,605	4,403
Guayaquil ¹	7,405	7,799	8,400	5,198
Iquique ¹	5,139	5,533	6,134	2,932
Valparaiso ¹	3,747	4,141	4,742	1,540
Yokohama ²	3,768	4,649	5,705	— 694 ³
Shanghai ²	1,876	2,757	3,813	— 2,852 ³
Hongkong ²	— 18 ³	863	1,919	— 4,172 ³
Manila ²	41	922	1,978	— 4,421 ³
Sydney ⁴	3,932	4,598	5,444	— 150 ³
Wellington ¹	2,493	2,887	3,488	1,564 ²

¹ Difference between Panama and Magellan routes

² Difference between Panama and Suez routes

³ Distance less via Suez route

⁴ Difference between Panama and Good Hope routes

in their sailing distance, and the table also shows that for ports on the Gulf of Mexico, such as New Orleans, there is more reduction in distance than for the ports on the Atlantic seaboard of the United States.

The saving in distance via the Panama Canal is greater for vessels to and from American ports than for those which enter or clear at the ports of Europe. The "twilight" or competitive zone as between the Panama and Suez Canals is reached far out in the Pacific Ocean. The line connecting points equally

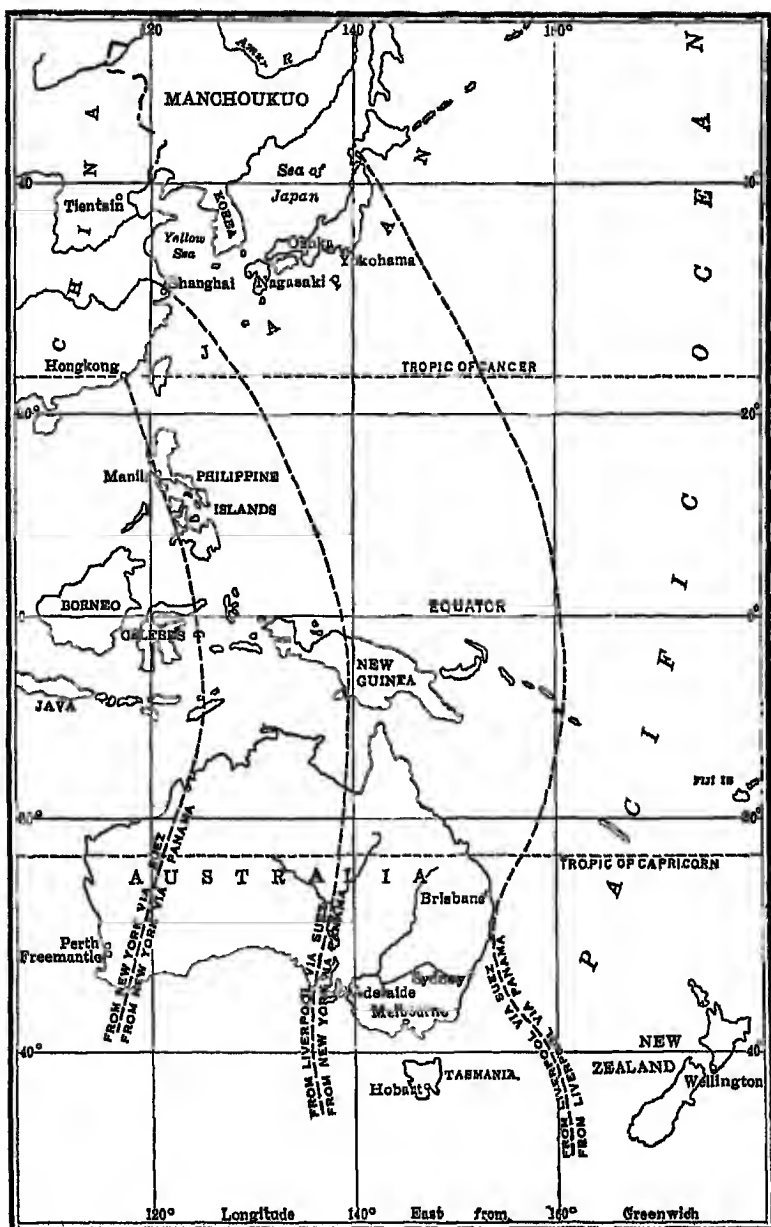
² See E. R. Johnson, *Panama Canal Traffic and Tolls*

distant from New York via Panama and Suez runs near Hong-kong and Manila, while the line connecting the points equally distant from Liverpool via the two great canals runs east of Australia and the large ports of Japan. For shipments from the eastern seaboard of the United States the distance is less via Panama to practically all the leading ports of Australia, Japan, China, and the Philippines, while steamers sailing from Liverpool continue to find the Suez route shorter to all Australasian and Oriental ports except those of New Zealand and the extreme northern ports of Japan and Siberia.

The saving in distance by the Panama Canal brings about a corresponding reduction in sailing time. For an ordinary 10-knot steamer, from New York the reduction in time via the canal as compared with the shortest competitive all-water route, is 99 days to Wellington, to Sydney, 158, Yokohama, 152, Valparaiso, 151, Honolulu, 27, Shanghai, 73, and San Francisco or other Pacific coast ports, 323 days. Reduction in time makes possible more frequent steamship services, more rapid delivery and lower operating costs. The actual economy effected is different for vessels of unlike speed and types.

Besides distance and sailing time other routing factors are in favor of the Panama route. Fuel cost is less via Panama than via the Suez, Magellan, and South African routes, primarily because less fuel is needed to reach the ports which are tributary to the canal, and also because more American and native coals are available, the prices of which are lower than those charged for British coal at many of the coaling stations on the Suez and Magellan routes. The greater ease of obtaining cargoes on particular voyages, moreover, at times causes vessels to take the Panama route from outlying ports even though it is not the shortest route. Vessels which formerly transhipped cargoes by rail at Tehuantepec now use the canal because they avoid the difference between the transshipment costs and the canal tolls, and, in general, as the canal encourages the establishment of more economical direct steamship lines, it discourages indirect shipments and the payment of the transshipment costs incident to them.

The volume of shipping using the Panama Canal fluctuated greatly during the early years of its operation, because of the



MAP 4. POINTS EQUALLY DISTANT FROM NEW YORK AND LIVERPOOL
VIA THE PANAMA CANAL AND OTHER ROUTES

interruption of international and intercoastal commerce occasioned by the World War and also of several interruptions of traffic caused by slides in Gaillard Cut. Later, the international commerce of the United States and Europe with the countries of the Pacific improved, and many vessels which had been attracted to the foreign trade prior to 1921 by high ocean freights returned to the intercoastal trade. During the year 1929, 6,430 merchant vessels, having a net tonnage of 30,353,189 tons and carrying 31,450,493 long tons of cargo, navigated the canal. The traffic temporarily declined during the subsequent business depression, but the tonnage is again rising, and in 1934 the transits were 5,342 and the net tonnage was 28,970,590. Panama Canal traffic will increase largely in the future, as the foreign trade of the Pacific becomes of increasing importance. The trade of the Eastern and Gulf ports of the United States with the Western coast of South and Central America, British Columbia, Australia, New Zealand, Japan, Northern and Central China, and the Philippines is making use of the canal, and traffic considerations at times give to it some of the trade of ports beyond Hongkong. The trade between Europe and the west coasts of the United States, South and Central America and Canada, and some of the trade of European countries with parts of the Far East and Australia, are also being routed through the Panama Canal.

At present the largest category of traffic benefited by the canal is the intercoastal. From 1,062,000 tons of intercoastal traffic in 1920, the intercoastal business of the canal rose to 13,528,000 in 1924 and remained large until the business depression, which started near the close of 1929, brought it down for a time. There were 8,504,087 tons of cargo in 1934 in the intercoastal trade. Some of the large growth of the intercoastal canal tonnage represents a diversion of general commodity traffic from the transcontinental railroads to the canal route, but a portion of the increase is the result of the stimulating influence of the canal upon intercoastal business as a whole.

The use of the Suez Canal under like terms by the vessels of all countries is protected by an international convention, and the Panama Canal has been neutralized by the United States. Long before the Panama Canal was constructed, the United

States entered into a series of treaties bearing upon possible canals connecting the Atlantic with the Pacific. There was a treaty with New Granada (Colombia) in 1846, Great Britain in 1850, with Mexico in 1853, with Honduras in 1864 and with Nicaragua in 1867. These treaties variously guaranteed the neutrality or equal use of interoceanic canals wherever or by whomsoever they might be built, or guaranteed most favored nation treatment to the citizens of the United States, or defined the management of such waterways. In 1901 a new treaty—the Hay-Pauncefote Treaty—was made with Great Britain to supersede the old Clayton-Bulwer Treaty of 1850. This treaty retained the “general principle of neutralization” established in the treaty of 1850 and also provided specifically, in Article III, that “the canal shall be free and open to the vessels of commerce and of war of all nations observing these rules, on terms of entire equality, so that there shall be no discrimination against any such nation, or its citizens or subjects, in respect of the conditions or charges of traffic, or otherwise. Such conditions and charges of traffic shall be just and equitable.”

Although its economic functions, its effect on commerce, industry, shipping and railroad freight rates are of greatest importance, the canal largely increases the effectiveness of the navy of the United States. The saving in sailing distance and time noted in connection with ocean routes benefits naval as well as merchant vessels. The long dangerous trip made by the battleship *Oregon* from the Pacific coast to the West Indies at the opening of the war with Spain in 1898 need not be repeated by American warships, unless an enemy should succeed in seriously damaging the canal.

A second trans-isthmian canal—one across Nicaragua via the San Juan River and Lake Nicaragua—is possible and has recently received consideration. A resurvey of this route was made in 1930 and 1931, the report of the engineers was against construction. The cost of a Nicaragua Canal would be twice what the Panama Canal cost and there is no commercial need of a second canal. It would be of naval and political value for the most part.

THE SOUTH AFRICAN ROUTE

A fourth ocean trunk line is the South African. Its Atlantic termini are in Europe and America, its main eastern connections are with the western, southern and southeastern coasts of Africa, with Australia and New Zealand, and, for sailing vessels, with the East Indies and the Orient. Some ships on this route from Europe engage in the West African coasting trade, but more do not. A large share, but not all of the shipping on this route, calls at Cape Town, the most important center of the South African trade, and at Durban in Natal, for coal. The heaviest traffic over this South African route is carried by the numerous lines of freight steamers running from northwestern Europe to Australasia. Passenger and mail steamers take the Suez route from the English Channel to Australia, but the distance saved, being less than 1,000 miles, is not enough to cause freight vessels to abandon the Cape route. Any extensive interference with the Suez route—such as occurred during the great World War—causes a diversion to the South African route of many vessels which normally are engaged in the Australian and Oriental trade via the Suez Canal.

THE SOUTH AMERICAN ROUTE

Corresponding with the route just described is the trunk line around South America, connecting the eastern and western shores of the North Atlantic with the Pacific coast of the Americas. In addition to the through traffic carried between the Atlantic and Pacific regions over this route, there are carried on, usually distinct from the interocean through traffic, the Pacific coastwise trade, and the trade of Europe and the eastern United States with Brazil and the countries of the Rio de la Plata.

Vessels engaged in the trade between the countries of the North Atlantic and the east coast of South America usually do not engage in the through traffic with regions beyond the Straits of Magellan. Various lines of ships ply back and forth between Europe and Brazil and the mouth of the Plata, and some also between the United States and those sections of South America, and a substantial amount of tramp tonnage is employed. Tri-

angular shipments in regular lines from the United States to South America by way of European ports have been discontinued since the establishment of a largely enhanced direct line service between the United States and the eastern seaboard of South America. Tramps, however, continue to operate to and from the ports of Brazil and the mouth of the Plata either directly or over a triangular route. Cargoes of South American products are at times brought to the United States in vessels that take cargoes from Europe to South America, and load there for the Eastern or Gulf ports of North America, where cargo for Europe may at times be obtained. The more rapid growth of the line services of the North Atlantic route during recent years has, however, affected the triangular business of tramp operators.

When the Panama Canal was completed, all or nearly all of the steamships which formerly operated via the Straits of Magellan were diverted to the isthmian route. Indeed, the main reason for constructing the Panama Canal was to shorten the water route between the countries of the North Atlantic and the Pacific coast of the three Americas. Sailing vessels may continue to sail around South America between Atlantic and Pacific ports, for the calms of Panama Bay make their use of the Panama Canal impracticable, but they have great difficulty in competing against steamers using the canal route. Since the opening of the Panama Canal the importance of the South American route depends almost entirely upon the commerce of the ports of the east coast of South America with the United States and Europe.

THE CARIBBEAN ROUTE

Although the traffic of the Gulf of Mexico and the Caribbean Sea—the two bodies of water which together are often called the American Mediterranean—may be said to be handled over routes that are southern branches and extensions of the North Atlantic trunk line, the present and prospective importance of the trade of the countries along the Caribbean and Gulf littoral affords good reason for placing the routes of that trade in a separate class. The main entrance from the Atlantic to the Gulf is the Florida Strait, the principal gateway to the Carib

bean is the Windward Passage, at the east end of Cuba, but the Mona Passage east of Porto Rico, and other channels to the south, are also used. Vessels enter the Gulf either to handle the grain, cotton and lumber exports from the Gulf cities of the United States, or to make the circuit of the Gulf and to share in the general trade of the adjacent countries with each other and with Europe and the North Atlantic ports of the United States. Likewise many of the ships entering the Caribbean from the United States or Europe call at several ports and make at least a partial circuit. There is a growing trade carried on entirely within the American Mediterranean between the Gulf coast of the United States and the ports to the south. The lines followed by the traffic of the Gulf and Caribbean are so complex that they may be more accurately called a system or group of routes than a trunk line, but together they comprise what is usually known as the Caribbean route.

A gradual increase in traffic, as in the case of the South American route, may be anticipated, for the commerce of the Caribbean countries is growing. The trade of the United States in this region, particularly with Cuba, Mexico, Porto Rico, and some of the Central American countries, has indeed grown so substantially as to merit the most careful consideration of the entire Caribbean region by American exporters and importers.

THE NORTH PACIFIC ROUTE

The most important trade route within the Pacific is the one connecting North America and Asia. Having for its American termini the chief ports from San Diego to Prince Rupert, and for its Asiatic focus Yokohama, with extensions from that port of call to other Japanese ports, to Shanghai and other cities of the mainland, and to Manila, this North Pacific trunk line is the route of the rapidly developing transpacific trade. The shortest course across the ocean being by the great circle, the northerly route is taken, except by such line vessels as call at Honolulu and thereby add 1,000 miles to the voyage from San Francisco across.

It will be recalled that the interests of the transcontinental railroads and the transpacific steamship lines are common in that both groups of carriers seek to share in the heavy traffic

that moves between Oriental ports and the central, western and eastern regions of the United States. They both compete against the eastern trunk line railroads and rival ocean routes. The transcontinental railroads have established special import and export rates, and the traffic of the North Pacific ocean route as a result, is not limited exclusively to the Oriental commerce of the Pacific coast states.

THE SOUTH PACIFIC ROUTE

One other Pacific route calls for special mention, the one from the Pacific coast of North America to Australasia. This Pacific coast-Australasian trunk line has for its three main termini in the United States, San Francisco, the port of Los Angeles and the Vancouver-Puget Sound section. New Zealand and Australia are its western termini. The sailings over this trunk line are most frequent via Honolulu and Samoa or Fiji, and thence either to New Zealand or to Australia, but another course much followed is from San Francisco via Tahiti in the Society Islands, and thence either direct to Sydney or to New Zealand, and on to Australia. The fast-mail route from Australia to Europe is across the Pacific to San Francisco or Vancouver, across the continent by rail to New York or Halifax, and on by express steamer, but in the absence of adequate mail steamers on the Australasian route the mails have frequently been forwarded through the Suez Canal. Export and import rates are also utilized by the transcontinental railroads as a means for sharing in the commerce of Australia and New Zealand with the central western and eastern states, but the freight traffic moving between Australasia and the western coast of North America is not so heavy as that over the other ocean trunk routes described, and the Panama Canal will restrict the future growth of the business of this route.

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CHAPTER IV

OCEAN TERMINAL FACILITIES AND CHARGES

THE ports and terminals at which the trunk line and branch line routes of ocean carriers terminate, and at which they ship and discharge their cargoes, are an indispensable part of the facilities of both ocean shipping and railroad transportation. At the seaport terminals, foreign and coastwise ocean carriers, the railroads, and other inland carriers meet for the interchange of traffic. The extent to which terminal facilities are provided and efficient methods are followed in handling traffic at the ports is the measure of effective coordination of ocean and inland carriers.

Ocean ports are of several types that result from their location, the authority by which they are administered, and the traffic functions they serve. Different policies prevail at different ports. The range of variation runs all the way from the practices prevailing at private ports constructed by carriers to serve a special kind of traffic to those obtaining at ports developed and administered by public authority to serve all kinds of trade and shipping. The charges imposed upon shipping for pilotage and for the use of facilities vary with ports, and the tonnage taxes levied by different countries are not the same. The subject of ocean terminal facilities and charges is thus a rather complicated one the discussion of which involves some detail.

The policy followed by the municipal, state and national governments in the development of ocean ports and terminals, and the policy of the city and state authorities in the administration of ports becomes of increasing importance with the expansion of industry and the growing dependence, especially of such a creditor country as the United States, upon international commerce. As domestic production expands, foreign markets are needed, and the people of the United States are

at last beginning to realize that the exportation of goods and the outflow of accumulating capital into foreign investments are dependent upon the flow of foreign goods into the country. In this chapter, we are considering some of the facilities needed by the foreign trade that is essential to economic prosperity.

PORTS GROUPED ACCORDING TO LOCATION

Ocean ports may be conceivably classified in two ways, according (1) to their general location, and (2) the manner in which they are owned and administered. When grouped according to their location, ocean ports are of four different types: the roadstead, the natural bay, the river port, and the combination of river and bay port. As examples of the roadstead type, Boulogne (France), Dover (England), and the port of Los Angeles (California) may be mentioned. These ports are located on the ocean shore, where no natural embayment provides quiet water for anchorage. Harbors are created at such ports at government expense, by the construction of costly breakwaters, and by the dredging of the artificially enclosed basins.

The Puget Sound ports, and San Francisco, Pensacola, and Boston, in the United States, Southampton in England and many other cities similarly located are examples of natural bay ports. In some cases, as, for instance, at Mobile, Alabama, the bay on which the city is located has to be dredged to accommodate the deep-draft vessels now employed in ocean commerce. The city located on a bay of ample area, and of thirty feet and more in depth at low tide, can provide a terminal for handling ocean traffic at a relatively small expense, but the trade of a city so located will generally be less than that handled at a city located near the mouth of a large river, because the river affords connection with a large inland area of production and consumption. The river port usually has a better traffic territory than the bay port has.

London, Hamburg, Bremen, Rotterdam, Antwerp, Philadelphia, New Orleans, and Portland are conspicuous examples of river ports, and this partial list shows that most of the great seaports are located on rivers. The cheapening of rail transportation and the increasing efficiency of the railroad, are giving

the roadstead and bay ports greater possibilities, by enabling them to compete with river ports over a wider traffic area, but the extensive improvements of inland waterways, and the technical development of inland navigation are likewise building up the trade of the river ports

The location of a port for ocean shipping on a river many miles inland no longer has the advantages it possessed before the development of railroad transportation, and while the draft of ocean vessels was 20 feet instead of 30 to 35 feet as it now is. Unless located near the mouth of a large river with a deep channel, a river port may be at a disadvantage, particularly in the passenger, express, mail and general cargo services in which promptness in delivery and arrival at destination is becoming an increasingly important factor. A city located as New York is, at the head of a bay and also on a large river, has the most favorable location possible

PORTS GROUPED ACCORDING TO ADMINISTRATION

Classified according to their ownership and the authority that administers them, ocean ports may be grouped as follows (1) public ports which are owned and administered directly by states or municipalities, (2) semi-public ports, some of the properties of which are owned privately and others by states or municipalities, and at which a varying degree of public control is exercised, (3) public trust ports which are owned by and administered through public trusts composed of non-salaried representatives of the municipality and of the various commercial organizations and interests centered at the ports, and (4) private ports that are owned and primarily administered by private transportation, terminal, or industrial concerns

The public administration of American ports is divided among the Federal Government, the states and the municipalities. The Federal Government through the Corps of Engineers of the War Department establishes the official pierhead lines beyond which harbor structures may not be erected. The Federal Government, in many instances, also dredges and maintains the harbor basin and channel from the sea, but the public administration of ports is left to the states and municipalities. The Interstate Commerce Commission regulates railroad terminal

charges, the Shipping Board Bureau regulates steamship practices. The United States Bureau of Public Health enforces health and quarantine regulations, and the Customs Service controls the entrance and clearance of vessels.

PUBLIC PORTS

Some of the ports of the United States are *public ports*. At the port of New Orleans the major portion of the water frontage is owned by the State of Louisiana, and all privately owned frontage is subject to expropriation at the pleasure of the State Board of Commissioners. The port is administered by three public administrative bodies: the State Board of Commissioners of the port of New Orleans, or so-called Dock Board, which operates the public wharf system of New Orleans and has general control over the port, the State Board of Commissioners of the New Orleans Levee District, which constructs and maintains levees, and by acquiring river frontage provides the Dock Board with space for wharves and wharf sheds, and the Public Belt Railroad with a portion of its right of way, and the Public Belt Railroad Commission, a municipal body, which operates the city's belt line railway.

San Francisco is another example of an American public port, the water-front from the Presidio on the north to the Union Iron Works on the south being owned by the State of California. The port is administered directly by the State through the Board of State Harbor Commissioners. The ports of Los Angeles, San Diego, and Oakland, in California, are examples of public ports at which a large part or all of the water frontage is owned by the municipalities and where port administration is vested in the municipal authorities.

SEMI-PUBLIC PORTS

Semi-public ports are far more numerous in the United States than public ports. At nearly all the larger ocean ports the ownership of the water frontage and wharves is partly private and partly public. Private ownership is vested in railroads, navigation companies, dock or terminal companies, and industrial concerns, and public ownership either in the municipalities or in the states. The relative extent of private and public own-

ership varies widely at the great ports¹ The degree of public control also varies, but some public control over private port facilities is exercised at every semi-public port, some water frontage is publicly owned and municipalities or states provide some of the wharves

Three general types of administration prevail at these ports

1 Many small ports and some of the larger ocean ports are administered by municipal departments At the port of New York, for example, there is a Department of Docks and Ferries which under the direction of a Commissioner of Docks employs a corps of engineers, draughtsmen, surveyors, clerks, auditors, inspectors, foremen, mechanics, artisans, ticket agents, deckhands, watchmen and other port employees The department has direct charge of the municipal docks and ferries, leases some municipal wharf property to private concerns and is empowered to regulate all privately owned wharf properties Hell Gate pilots are licensed and regulated by a board of port wardens acting under authority of the State of New York, and Sandy Hook pilots by a Board of Pilot Commissioners appointed by the States of New York and New Jersey There is also a Port of New York Authority that was created in 1921 by joint action of New Jersey and the State of New York to coordinate the port of New York as a whole and to guide its comprehensive development The Port of New York Authority does not displace the administrative departments maintained by New York City and the New Jersey municipalities but has, by action of the two states taken in 1922, been given power to purchase, lease and operate any terminal facility in the Port of New York District

The Port of Philadelphia is administered by a Department of Wharves, Docks and Ferries, at the head of which is a director who is appointed by the Mayor, subject to ratification by the Select Council In the case of Philadelphia, however, there is also a State Board of Commissioners of Navigation with jurisdiction over the licensing and control of pilots, the rules for the anchorage of vessels, and the general supervision outside

¹See U S Bureau of Foreign and Domestic Commerce, G M Jones, *Ports of the United States* (1916), and the volumes in the *Port Series* prepared jointly by the Corps of Engineers of the War Department, and the Bureaus of Research and Operation of the Shipping Board 1921 1933

of Philadelphia of the Delaware River water-front of Pennsylvania

2 Some American ports, such as Baltimore, Maryland, and Portland, Oregon, are administered by municipal harbor boards or commissions. Instead of regarding port administration in the light of street paving, street cleaning, sewer construction or other municipal functions, a special governing body is created. Sometimes the board is merely a body advisory to the port authority, or it may have but one active member and differ but slightly from a municipal department.

3 Some of the semi-public ports of the United States are administered directly in whole or in part by state harbor boards. The port of Boston is administered by a State Commission of Waterways and Public Lands which is a division of the State Department of Public Works. Pilotage is controlled by two commissioners appointed by the Governor of the State. There are similar state harbor boards in Connecticut and Rhode Island. Among the state boards with authority over ports are those at Philadelphia and the Delaware River ports of Pennsylvania, and those at Charleston, South Carolina, Portland, Maine, and Wilmington, North Carolina. It should be noted that the state boards in some instances administer the ports only in part, there being separate municipal departments as at other semi-public ports.

PUBLIC TRUSTS AT AMERICAN PORTS

Some of the ports of the United States are administered in part by so called independent port authorities which are similar in some ways to the "public trusts" found at many British ports. Separate municipal corporations, independent of, but supplementing the municipal governments of the port cities, have recently been created by the legislatures of various states. Action taken by the State of Washington affords a good example. Under the Washington Port District Act of 1911, an independent "port district" managed by an elective Port Commission has been established at Seattle for the improvement and development of the port of Seattle. The Port Commission does not have authority over water-front property owned by the city or by private interests. The State Department of Public Works regulates the

rates and services of companies having public terminal facilities. A similar port commission was established at Jacksonville, Florida, in 1912, and at Tampa, Florida, in 1913. The port of Portland, Oregon, is primarily administered by a municipal Commission of Public Docks, which constructs and operates municipally owned terminals, but its work is supplemented by an independent authority known as the "Port of Portland," which was created by the state legislature in 1891 to levy taxes independently of the city and to improve the harbor and the Willamette and Columbia rivers from Portland to the sea. Later, it was also charged with the construction and operation of a state dry-dock and with the maintenance of a pilotage and towage service. The Port of New York Authority is a bi-state independent body that has much authority that would otherwise be exercised by the municipalities in the port of New York district. The American port commissions, or authorities, created in accordance with state legislation and having jurisdiction over port districts larger than the municipal area may be regarded as public trusts, but they are somewhat different in organization and functions from most public trusts and from those that have authority at British ports.

PRIVATE PORTS

Several of the ocean ports of the United States, such as Port Arthur and Texas City, Texas, are private ports in that their facilities are provided almost entirely by private interests, which also administer them with but a minimum of public control. Some of the larger ocean ports may likewise be practically classed as private ports if they have no publicly owned terminals of commercial importance. They are not private in the sense that the charges and services at the terminals are without public regulation. There is public regulation of such services and charges at all terminals that are used by the public.

OCEAN TERMINAL FACILITIES

Ocean terminals usually perform two quite distinct functions, commercial and industrial, a fact which complicates the facilities they need to provide. The commercial facilities of a port have to do mainly with the handling and shipment of the through

traffic which is brought to the port from many outlying points by rail or by inland and coastwise water carriers for exportation, and of traffic that is imported from foreign countries for transshipment to outlying destinations. Ocean ports must also provide facilities to serve the local industries situated at the port, or in the city or territory adjacent to the harbor.

The terminal facilities at ocean ports include, first of all, the necessary "docks and wharves." These terms are frequently used interchangeably, but technically the latter refers to the structures over which the vessels receive or deliver their cargoes, and the former to the harbor space alongside of the wharves in which the vessels are placed when loading or discharging. Wharves may be provided either on longitudinal shore bulkheads sometimes known as "quays," or on "piers" projecting from the shore into the harbor. The docks at most American ports are open spaces dredged alongside the longitudinal wharves, or between piers. In the latter case the docks are commonly known as "slips." At some European ocean ports, however, some of the docks are closed-in because of the great difference in tide levels. London, Liverpool and Bremerhaven are notable examples of "closed dock" ports, many of their docks being excavated in the dry to the required depth and cut off from the tidal waters by locks. At certain European ports, such as Glasgow, Hamburg and Copenhagen, moreover, although the docks are without locks, some of them are "tidal docks" excavated in the dry with open entrances leading to the navigable channel.

Some wharves are used for the handling of the passenger traffic, but many more are freight cargo wharves, some of which are used solely for general cargoes and others for special traffic, such as coal, lumber, oil, and sugar. Many are covered with "sheds" or warehouses for the protection, assembling and handling of cargoes. Bonded warehouses are also provided at American ports for the storage of imported wares to be held in bond until they are reexported or the import duties on them are paid.

FREIGHT-HANDLING FACILITIES

The freight-handling facilities at the wharves, in the harbor, or on board the vessels constitute a second port essential. They

are of two general types general appliances for handling miscellaneous cargoes, and special facilities for handling special bulky commodities. There may be in fact, more specialization of loading and unloading facilities at some ports. Special provision may be made for uniform package freight, dangerous commodities and precious goods.

In handling miscellaneous general cargo, particularly at American ports, where the use of extensive wharf machinery is on the whole less prevalent than at the larger European ports, the common hand truck is still much used in moving general cargo to and from shipside, to and from lighters, to and from railroad cars and drays or motor trucks, and from point to point on the wharves. Power-driven trucks have, however, been substituted to some extent and a beginning has been made in the use of mechanical conveyances for the movement of miscellaneous freight from vessel hatches to warehouses for subsequent sorting.

General cargo may be loaded or discharged by means of the ship's machinery or by wharf cranes, derricks, and other appliances. Although wharf machinery for general cargo is provided at some American ports, the prevailing American system places the burden of transfer upon the vessel. Various plans for operating ship's machinery are in current use, but all of these depend primarily upon power-driven deck winches, and cargo masts and booms fitted with blocks and ropes or cables. Dependence upon shore machinery for loading and discharging of general cargo is more prevalent at some of the large European ports, where many types of stationary and movable cranes and derricks and other appliances have been installed both for light and heavy freight.

The advantages cited in favor of the continued use of ship's machinery includes the heavy initial expense and overhead incurred in equipping wharves with large cranes and derricks, the lack, on many piers, of the space needed for large wharf freight-handling appliances, the necessity of constructing wharves of sufficient strength, and the resulting increase in construction costs, the absence in many instances of any marked advantage on the part of cranes or derricks in the time consumed in transferring cargoes, and the necessity of employing skilled,

expert operators in the operation of complicated wharf appliances. The extent to which the cranes and derricks can be used to reduce subsequent freight handlings, moreover, is limited because many piers are not sufficiently wide to be equipped with railroad tracks upon which cars could be placed for direct loading by means of the same shore appliances that are used in discharging vessels. Inertia, and in some instances, opposition on the part of longshoremen, have probably deterred pier and wharf owners from adopting shore machinery for the loading and unloading of general cargo in the United States. Only such piers and wharfs as handle a sufficiently large volume of traffic to warrant the added investment, will be equipped.

The advantages cited in favor of the use of shore cranes and derricks instead of the ship's machinery are that they reduce the number of freight handlers and the amount of hand labor employed in loading, discharging and moving cargo, that cranes are practically always ready for action and are frequently in better working condition than the ship's machinery, that their range of deposit on the wharf is larger than that of ship's tackle, that they can also be used for handling cargo from point to point on the wharf and sometimes for the direct loading of freight into cars, and that they possess a special advantage at ports having unusually heavy tides.

The freight handling machinery on the vessels and on the wharves is supplemented by large numbers of harbor craft. A vessel may be at anchor out in the open harbor when loading or discharging, and even when it is at a dock or in a slip, or alongside a bulkhead, much freight may be brought to it or received from it by harbor craft, and lighters may also be utilized so as to work both sides of the vessel at the same time. At New York, cargo is moved about the harbor by thousands of harbor craft, including lighters of 300 to 800 tons freight capacity, covered barges of 300 to 500 tons capacity, floating derricks, scows, tugs, and other small craft. At London, it is said that some 11,000 river barges are employed to handle about four-fifths of the goods loaded on or discharged from the ships in dock.² At many ocean ports the amount of lighterage work performed is relatively less extensive.

² D. Owen, *Ocean Trade and Shipping* (1914), p. 24.

American ports have, on the whole, done more to provide special freight handling equipment than to install general cargo facilities. Special piers at many ocean and Great Lakes ports are equipped with chutes and pockets, car-dumping machines, movable loading and unloading buckets, electric conveyors, floating tipples, or "fast plants" of various kinds for loading or discharging coal and ore. Grain is handled in bulk at many points through stationary and floating elevators. Petroleum wharves with special appliances have been erected at various Atlantic, Gulf and Pacific ports, and at some ports special machinery is used for handling bananas, phosphate and fertilizer materials, sand, gravel, and other building materials.

Standardized package freight conveyors have been installed more largely in Europe than in the United States. Although conveyors are at times used in loading, discharging, and handling miscellaneous general cargo, they are especially adapted to freight shipped in standardized packages. The costs and time of handling packages are reduced and there is less damage to cargo.

It is especially important that the various parts of an ocean terminal be so coordinated as to minimize expenses for drayage and lighterage. Belt-line railroads are operated along the waterfront at some ports to connect the piers and wharves used by ocean vessels with each other, with those used by coastwise and inland vessels, with the premises of local industrial and mercantile establishments, and with the railroads serving the port. A good example of such a belt line is the one operated by the city of New Orleans. Coordination of the water-front terminals with the railroads is one of the most serious needs at American ports.

Several charges must be paid by a vessel when it enters or clears a port. Some of these charges are levied upon the vessel, and others are assessed against the cargo. Some of the fees or dues are imposed by the state, the municipality or the Federal Government, and still others are of a strictly commercial character.

DOCKAGE AND WHARFAGE PRACTICES

Two of the principal port charges incurred are for "dockage" levied upon the vessel and "wharfage" based upon cargo. The practice of different ports regarding the collection of dockage

or wharfage varies widely. Four principal variations are readily discernible.

1. At ports where the facilities are largely controlled by the trunk line railroads, it is sometimes the practice of the railroads to give the use of their facilities for through traffic free or for small charges. At Philadelphia, for example, no dockage is charged at railroad terminals if the vessel loads or discharges through export or import freight. Most of the municipal piers are leased on exclusive terms, but some of them are open to public use upon payment of a dockage charge based upon the net-registered tonnage of the vessel. No wharfage charge is collected at the municipal wharves of Philadelphia in case cargoes are promptly removed, and the wharfage at the railroad terminals is absorbed by the owning carriers on all through export and import traffic, unless the railroad freight rates fall below certain minima specified in the carrier's local tariffs. Export grain at most ocean ports of the United States is required to pay an elevation charge. Additional examples of the large ports at which the railroads either furnish terminal facilities free of charge or at small expense to shippers of through freight are Boston, Baltimore, and Norfolk.

2. At some ports, notably at New York, most of the port facilities are leased to steamship lines or railroads under time contracts. In such case neither the vessel nor the cargo of the concerns that lease the facilities is required to pay dockage or wharfage charges. Some of the municipal piers at New York, however, are not leased under time contracts, but are open for public use, and vessels using them pay a dockage charge per net-register ton per day. No dockage is charged at railroad piers, but at other privately owned piers various dockage rates based upon net-register tonnage are collected. No wharfage charge upon cargo handled at either privately owned or municipal wharves is collected at New York except that at some municipal and privately owned piers a so-called "top-wharfage" charge is levied after the expiration of the first 24 hours.

3. At Newport News, dockage charges are not assessed against vessels that load or discharge cargo at railroad piers and municipal terminals. There is a schedule of charges for wharfage, the charges varying with differences in commodities. Likewise, at

Seattle, Washington, there is no dockage charged vessels while loading or unloading, while the wharfage charge is 50 cents a ton on general cargo, 15 cents on freight from the Hawaiian Islands, and 25 cents per ton on coal in lots of 500 tons or more

4 At Galveston and San Francisco, dependence is principally upon tolls or wharfage charges, which vary with the nature and quantities of the cargoes handled, but a relatively small dockage charge upon vessels is also collected At either of these two ports, the facilities are open to all on substantially equal terms The system of port charges in effect at New Orleans also provides for both dockage and wharfage charges, but the amounts are more equally divided

OTHER PORT CHARGES UPON VESSELS

Pilotage service, with certain exceptions, is compulsory upon vessels entering and clearing American ports, and the charges therefor vary at different ports according to vessel draft, the amount of service required, whether the service is rendered to inbound or outbound vessels, the season of the year, and the class or type of vessel A vessel, in docking and undocking, or in entering and clearing, usually requires the services of tug-boats, charges for which vary with the number of tugs used, the net-register tonnage of the vessels, the distance that the vessel is towed, and the character of the towage service Sometimes there are port warden's harbor fees and fees for each survey of stowage of cargo or of damaged goods on board a vessel, or in warehouses, stores, dwellings, or public streets, and for each survey of hull, sails, spars, or rigging, and for survey certificates A vessel may also need to pay local health or quarantine fees for fumigating services and for sanitary inspection, charges for running lines for vessels, and other miscellaneous charges that are subject to regulation by local port authorities

A vessel engaged in the foreign trade will also have to pay various Federal charges, such as tonnage taxes, custom house entrance and clearance fees, and survey charges There are additional variable payments, such as the consular fees, that a foreign vessel may need to make at American ports, charges for telegrams and cablegrams, for cooperage and carpenters' services, for lumber, for supplies and provisions, for trimming cargo, for

dry-dock services, for ship brokerage in case the vessel is in the chartered freight service, and for necessary fuel

Bunker coal or fuel oil may be purchased from numerous concerns that make a business of providing vessels with fuel. Regular steamship companies may enter into yearly contracts whereby the coal company agrees to provide whatever coal is needed at stated prices, and the navigation company agrees to purchase from the particular coal concern all the bunker coal required at that port. Tramp steamers and other vessels not entering into time contracts will purchase fuel at current prices. Numerous coaling stations have been established at convenient points on all the principal ocean routes throughout the world, and it is also possible to obtain fuel oil at various ports in the United States and at a growing number of foreign fuel stations.

PORT CHARGES UPON CARGOES

Wharfage charges distinct from the dockage charges paid by the vessels are sometimes assessed against cargoes. They may be collected directly from operators of the vessels, but are charges against cargoes. The heaviest burden upon freight loaded or discharged is for stevedoring which may be borne in the first instance by the vessel instead of the shipper, consignee, or shipping agent, but will be passed on by the regular line vessels to the shippers who pay the freight charges. Who pays loading or unloading charges in the tramp service depends upon the terms of the charter party. The cost of loading, discharging, or transshipping cargo at ports, may also include special charges for the use of cranes or derricks, even when ordinary stevedoring charges are absorbed by the carrier in its freight rates. There may likewise be elevator charges or allowances in the shipment of grain, cargo-trimming charges, freight-forwarding charges, railroad demurrage in case freight is not unloaded from railroad cars within the prescribed number of days, vessel demurrage in case freight is not loaded into the vessel or delivered to or received alongside the vessel within the prescribed free time or at the rate of an agreed number of tons per day, unabsorbed railroad switching charges, fees for consular invoices in case of shipments to certain countries requiring such invoices, drayage or cartage and lighterage charges for transporting freight from

one wharf to another or between a railroad station and the water front, storage or warehouse fees, and miscellaneous charges incurred in the preparation of shipping documents. There are also the costs incident to the transfer of rail ocean freight between piers and freight car, which are in many instances absorbed by the carriers in the export and import trades. When not so absorbed, the freight-handling charge is collected in addition to the railroad rate and may be a substantial item of expense. Many of the terminal charges collected at American ports depend upon local conditions and are not uniform. They may, moreover, be paid either directly by shippers or consignees, be absorbed by the ocean or the rail carriers, or be included in the freight rate.

Of a somewhat different character are cargo charges such as import duties collected on many imported commodities under the tariff laws of the United States, and the brokerage charges, collected by customs brokers for entering imported merchandise through the custom-house. These charges are not directly connected with the shipping and handling of cargoes in the foreign trade, and are to be considered as port charges only in an indirect way.

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CHAPTER V

TRANSPORTATION FACILITIES ON THE GREAT LAKES

THE commerce of the Great Lakes, which, during prosperous years, amounts to well over 100,000,000 short tons annually, differs from that moving on ocean routes in that a heavy preponderance consists of bulk traffic. Bulk commodities, principally iron ore, coal, grain and stone, comprise more than 90 per cent—at times as high as 97 or 98 per cent—of the total. The result is that a large proportion of the Lake fleet consists of bulk freighters constructed especially for the iron ore, coal and grain trades. They are so designed that they can readily shift from one type of bulk cargo to another, because the movement of these cargoes is mainly in opposite directions. This predominance in bulk cargoes is also responsible primarily for the extensive use of specialized loading and unloading facilities at the larger ports of the Great Lakes.

TYPES OF GREAT LAKES VESSELS

As of December 31, 1934, the total number of vessels of American and Canadian registry available for commercial trade on the Great Lakes totaled 904, with a gross register tonnage of 3,369,533¹. Of these, 819 were cargo carriers available for the transportation of bulk cargo, package freight, oil and gasoline.² Of the total commercial fleet, 603 vessels were of American registry and 301 of Canadian registry, the former aggregating 2,646,582 and the latter 722,951 tons gross register.³

¹ Lake Carriers' Association, Annual Report (1934), pp. 53-55.

² *Ibid.*, pp. 56-58.

³ The U. S. Bureau of Navigation and Steamboat Inspection, in *Merchant Marine Statistics* (1934), reports the enrolled fleet of the "northern lakes" as follows: number of enrolled vessels, 2,208; gross tonnage, 1,802,305. These figures include certain northern lake vessels not operated on the Great Lakes. The Bureau does not include lake vessels that have their home ports on the Atlantic Seaboard. For example, lake vessels documented at Wilmington, Delaware, are credited to that port.

The type and construction of these Lake vessels is influenced largely by the nature of the cargo available and by physical conditions. Bulk cargo available in large quantities over rather definite routes would almost inevitably lead to the building of bulk freighters especially designed to handle such cargo speedily and economically. Large quantities being regularly shipped between certain ports caused the introduction of permanent loading and unloading equipment at these ports, and this in turn made it unnecessary to equip many of the bulk freighters with extensive ship's machinery for loading and unloading purposes. Although the larger part of the lake traffic of the United States is divided among twelve ports—Duluth, Superior, Buffalo, Ashtabula, Cleveland, Conneaut, Toledo, Calumet, Ashland, Escanaba, Milwaukee, and Indiana Harbor—there are approximately 400 harbors on the Great Lakes, and this creates a need for a certain number of cargo freighters of the self-unloading type. The principal bulk cargo ports just referred to and many others are equipped with shore machinery, but many small ports are handicapped by an inadequate volume of traffic. The geographical position of lakes and connecting channels similarly creates a logical basis for car ferries designed to transport freight cars between the West and the East or between the United States and Canada.

Physical or natural conditions have been an important factor in several respects. They not only create car ferry traffic which constitutes but a small part of lake traffic, but definitely influence, to a greater or less extent, nearly the entire fleet operating on the Great Lakes. The length of the trip is short as compared with that of most ocean-going vessels, and there are channels some of which are shallow, and a number of connecting canals and many ports which have water depth definitely influencing vessel construction. The available water level of the Great Lakes changes from season to season and not only influences vessel construction but limits the volume of traffic that can be transported. Record loads are usually attained during seasons when water levels are high. Changing water levels cause the United States Corps of Engineers to recommend vessel drafts, the average during the period 1910 to 1934 having ranged from 17 feet 6 inches in 1934 to 20 feet 6 2 inches in 1929 for the St. Marys

River, which regulates the Lake Superior traffic, and, from 17 feet 8 6 inches in 1934 to 21 feet in 1918, for Lake St Clair, which regulates traffic moving between Lake Erie and Lake Michigan ⁴

The Lake bulk freighters, having been designed for the efficient transportation and handling of a limited range of bulk commodities, many of them primarily for the iron ore trade, are standardized to a considerable degree. The typical bulk freighter has its power plant far aft and its quarters and bridge forward, the entire space between them being an unobstructed cargo hold. The long clear deck is fitted with from 12 to 40 hatches, "separated by the width of the thwarts which are usually spaced 12 feet between centers" ⁵. For some years the number of hatches increased as larger vessels were constructed, but more recently improved port loading and unloading facilities made possible a change in deck design. Several of the largest bulk freighters now have but 18 hatches each of which is 38 feet athwartship and 12 feet fore and aft, the reduced number of hatches increasing the structural strength of the vessel. These vessels are self-trimming. They have unobstructed holds, many of them having sloping sides which perform a definite function in trimming cargo and permitting the effective use of unloading machinery.

Other structural features usually include the absence of watertight bulkheads and the presence of water ballast tanks sufficiently large to offset the unbalanced traffic moving eastward and westward on the Lakes and to facilitate rapid loading and unloading at the ports, the relatively thin shell plating made possible by strong structural framing and the relatively less rapid corrosion of steel caused by fresh water than by salt water, and the lack of special ventilation features. "There is no need for these [ventilating] facilities as the duration of the voyage is short and the cargo hatch covers are removed during pleasant weather, thus providing natural ventilation." ⁶ Still another characteristic of the lake bulk freighter is its high block coefficient. For many of them it is as high as 0.87. These vessels depend mainly upon length and high block coefficient to achieve

⁴ Lake Carriers' Association, Annual Report (1934), p. 40

⁵ Corps of Engineers and U. S. Shipping Board, Transportation on the Great Lakes (1930), p. 29

⁶ H. S. Perry, *Ship Management and Operation* (1931), p. 225

maximum carrying capacity, for their depth and beam are limited by physical conditions and the requirements of existing port facilities

The dimensions of these bulk cargo freighters have not been fully standardized They increased in maximum length from 440 feet in 1902 to 605 feet in 1906, and it then came to be believed by many that the most economical lake bulk freighter would have overall length of about 600 feet, a beam of 60 feet, a depth of 32 feet and a register tonnage of from 7,400 to 8,200 tons gross ⁷ Later, however, the desire for larger vessels and the inability, because of physical limitations, to increase either depth or width, except slightly, caused the construction of longer vessels The 15 longest bulk freighters constructed since 1911 range from 617 to 638 feet in overall length, from 59.2 to 70.8 feet in beam, and from 32 to 33 feet in molded depth Their register tonnage ranged from 8,289 to 10,480 tons gross, and their carrying capacity from 12,000 to 15,000 long tons of cargo

Most lake bulk freighters are equipped with coal-burning, reciprocating steam engines ⁸ There are, however, about twenty motor driven bulk freighters of 1,000 tons gross and over, although not all of them are of the standard lake type Of the fifteen largest bulk freighters previously referred to, however, two—the *Henry Ford II* and the *Benson Ford*—are driven by diesel engines They are engaged in carrying coal, coke, iron ore and limestone ¹⁰ Other lake motor vessels, excepting certain oil tankers not here included, are variously engaged in the steel, grain and special trades, in the sand trade, and in the coal, grain, paper and package trades Several bulk freighters, moreover, are propelled by turbo-electric engines, this type of power plant being especially well adapted to the needs of bulk freighters fitted with self-unloading equipment

Great speed is not emphasized in the operation of bulk freighters Bulk freight, whether carried on the Great Lakes or elsewhere by water, is usually moved slowly The major factor is

⁷ Corps of Engineers and U. S. Shipping Board, *Transportation on the Great Lakes* (1930), pp. 34-35

⁸ But one vessel, the *Lemoine*, of Canadian registry has a beam of 70 feet The maximum obtained by other lake bulk freighters is 65 feet

⁹ *Merchant Marine Bulletin*, April, 1931, p. 24

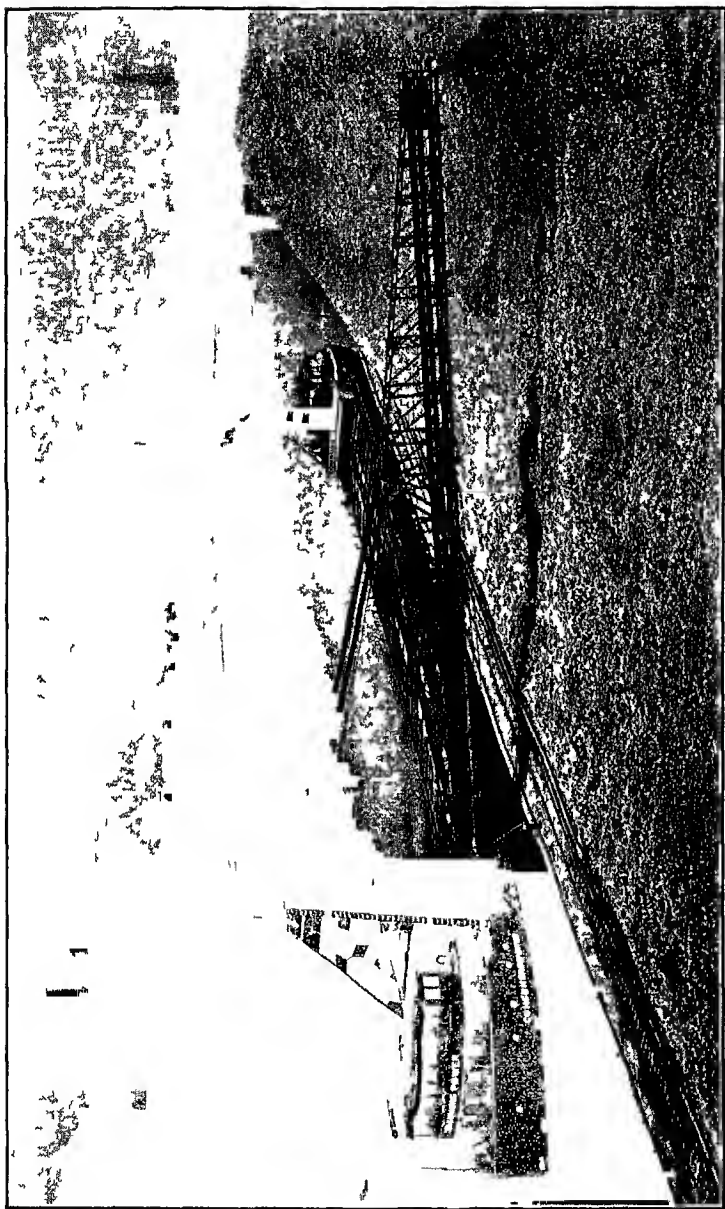
¹⁰ Ford Motor Company, "Ford Uses Water Transportation," in *Merchant Marine Bulletin*, July-August, 1930, p. 14

economy rather than speed. On the Great Lakes, moreover, the distances are relatively short and much has been accomplished by way of rapid turn-around at the ports by means of improved loading and unloading facilities. Few lake bulk freighters are operated at a speed of over 12 knots. A special study of 506 freighters of all types made by the Bureau of Research of the Shipping Board in 1931 indicated that 498 of the vessels that were studied had a speed of 12 knots or less, six of 13 knots, and two of 14 knots.

Some of the lake bulk freighters are of the self-unloading type. Self-unloading equipment has not been standardized, but on several of the large lake bulk freighters it consists of a belt conveyor that extends the length of the vessel beneath the cargo, a bucket conveyor lift and a discharging boom. Self-unloaders are enabled to unload rapidly at ports where no wharves or piers are equipped with efficient unloading machinery, and they can unload at wharves or piers not so equipped even at the large ports where other bulk freighters are dependent upon available shore unloading facilities. They have a special advantage in the unloading of stone. Some of the first lake self-unloaders were "former ore freighters that were changed to meet the demand for carriers of stone, coal, sand and gravel to ports where there are no adequate facilities for discharging."¹¹

The cargo carriers built especially to navigate the Welland Canal before the later enlargement of this waterway constitute a special type of bulk freighter of real importance in the bulk cargo trade moving between Port Colborne and Montreal. Cargo, particularly grain, brought to Port Colborne in the larger lake freighters had to be transferred to smaller vessels for delivery at Montreal. The larger and newer of the freighters that navigated the old Welland Canal before its enlargement usually had an overall length of 261 feet, a beam averaging about 43 feet, a depth ranging from 15.5 to 22.2 feet, gross register tonnage ranging from 1,690 to 2,300 tons, and a carrying capacity ranging from 2,500 to 3,150 long tons of cargo. Before the Welland Canal was enlarged into a ship canal they were limited to a draft of less than 14 feet by the locks through which they passed.

¹¹ Corps of Engineers and U. S. Shipping Board, *Transportation on the Great Lakes* (1930), p. 32.



A SELF-UNLOADING LAKE BULK FREIGHTER

en route, although some of them, but for this limitation, could have loaded to a draft of 18 feet or more ¹² Vessels of more than 14 feet draft, however, could not pass through the locks of the St Lawrence waterway to Montreal When late in 1930, the new Welland Ship Canal was opened to large lake bulk freighters, the volume of canal traffic began to increase, but the Canadian fleet of old, canal-size vessels continues to operate because the vessels can reach Montreal In 1932, the canal was opened to the largest lake vessels, loaded to the maximum draft of 22 feet The total number of transits of all types of vessels decreased from 6,028 in 1928 to 5,154 in 1934, but the net tons of freight carried during these years increased from 7,439,617 to 9,281,182 ¹³

Still another special type of lake bulk carrier includes the steel barges (40 in 1934) used in the ore, coal, grain, pulp, coke, lumber, sand and gravel trades, the wooden or iron barges (13 in 1934) used in the coal, lumber, scrap, sand and pulp trades, and a very few oil tanker barges There also is an increasing number of self propelled steel oil tankers (42 steamers and motorships in 1934) The most recent additions to the Canadian tanker fleet have an overall length of 258 to 260 feet, beam of 43 2 to 43 5 feet, depth of 17 7 to 17 9 feet and a carrying capacity of 2,000 long tons of cargo

The Lake car ferry fleets now comprise 84 steel vessels carrying railroad freight cars across Lakes Michigan, Erie and Ontario and across the Detroit, St Clair and St Lawrence rivers and the Straits of Mackinac They are operated mainly by railroads as important connecting links in their freight service They vary in size Most of them are able to carry from 20 to 30 freight cars but some of those operating on the rivers are smaller The largest car ferries, those having capacities for 30 cars, are from 361 feet 3 inches, to 381 feet long, from 56 to 57½ feet wide and from 21 to 22½ feet deep The modern lake car ferry is a large strongly built, steel vessel Most of them, except on Lake Erie operate the year round, they are built to withstand ice conditions and are equipped with water-tight bulkheads Some of them have accommodations for passengers and automobiles Several of the most recently constructed car ferries are driven at the rate of over

¹² *Ibid.*, p 36

¹³ Lake Carriers' Association, Annual Report (1934), p 107

17 statute miles per hour by turbo-electric engines. Most of the older vessels, however, are driven by reciprocating steam-engines at lower rates of speed.

The Corps of Engineers and Shipping Board reported that on October 1, 1929, 63 steamers of 1,000 tons gross register and upward aggregating 184,048 tons were engaged in the Great Lakes passenger and package freight trades, and that 37 of these vessels totaling 104,157 tons gross, were of American registry.¹⁴ The Lake Carriers' Association, however, in 1934 reported a total of 103, if all passenger and package freight vessels are included. Sixty-seven of them were under American registry, and 36 under Canadian registry. Some of them carry coal, grain or other bulk commodities as well as package freight. Fifty-one of them carry passengers as well as package freight, 37 of the passenger vessels being of American registry. These figures do not include a group of wooden vessels listed as carriers of automobiles, coal, scrap, salt and lumber, and another group of steel bulk freighters which were converted into automobile carriers. The principal package freight consists of flour, cement and lime, iron and steel products, automobiles, sugar, salt, pig iron, fruits and vegetables, fish and copper.

The passenger and package freight vessels vary exceedingly as to size, speed, structure and method of propulsion. Some of them have been in service for many years and can hardly be compared with more recently constructed vessels, but some of the older vessels have excellent passenger accommodations and perform a surprisingly rapid and regular service. Many lake passenger vessels are propelled by paddle-wheels. Although some passenger vessels are screw-propelled, the two largest passenger vessels on the Great Lakes, the *Greater Detroit* and *Greater Buffalo*, are side-wheelers and have double rudders. These vessels operate on regular schedule between Detroit and Buffalo and therefore were designed to meet fully the operating conditions encountered on Lake Erie and the Detroit River. Speed, maximum size and safety were guiding aims. "They are 550 feet long overall, 100 feet wide over wheel guards, have a molded depth of 23 feet 6 inches and are capable of a speed of 21 miles per hour. They are luxuriously fitted and have 650 rooms with bed

¹⁴Transportation on the Great Lakes (1930), p. 37

or berth accommodations for 1,200 passengers"¹⁵ Each also has a cargo capacity of 1,000 tons The average speed actually maintained is well under the maximum speed of which these vessels are capable but is a valuable asset when for any reason it becomes necessary to speed up for the purpose of making connections with either railroads or other lake vessels Engines of 10,000 horse-power are provided to drive these large passenger vessels at the desired speed

GREAT LAKES TERMINAL FACILITIES

The specialized vessels provided for the transportation of bulk cargoes are fully coordinated with specialized loading and unloading facilities at the principal lake ports Nowhere are wharves and piers equipped more extensively with shore appliances for loading and discharging bulk cargoes

In shipping iron ore specialized facilities and methods begin at the mines The ore-carrying railroads provide a special type of bottom-dump hopper car, "which, when run upon the ore dock will fit exactly over the ore pockets thereby allowing the filling of designated pockets with specified grades of ore"¹⁶ The railroads carry the ore direct to shipside at Marquette, Escanaba, Ashland, Two Harbors, Duluth and Superior The railroads themselves own and operate the huge ore "docks" which range from 900 to 2,394 feet in length and from 66 feet 6 inches to 84 feet in height The docks are equipped with from 148 to 384 ore pockets each, the ore being loaded by gravity directly into the vessels through spouts The more modern ore docks are built of concrete and steel, and have pockets on either side so that four or five large ore vessels may be loaded at the same time A typical large ore dock has been described as follows

It is of steel construction 2,304 feet long, and contains four tracks with the necessary trestle approach, upon which are two tracks It is 84 feet high and the width between the outside faces of the pockets is 60 feet The extreme width of the operating platform is 75 feet, 5 inches It has 384 pockets arranged in pairs, one on either side of the longitudinal ridge running along the center The floors of the pockets have a slope of $47\frac{1}{2}$ degrees from the horizontal, the depth being 5 feet, 11 inches on the inside and about 39 feet on the outside, or front of

¹⁵ Transportation on the Great Lakes (1930), p. 38

¹⁶ Transportation on the Great Lakes (1930), p. 250

the pockets The pockets are 12 feet wide, center to center, and each has a capacity of 6,560 cubic feet¹⁷

So efficient are these ore loading facilities and the ore carriers that as much as 12,689 long tons of ore has been loaded in 30 minutes at the rate of 25,328 tons per hour in the regular course of trade¹⁸ On a special occasion 12,508 long tons were loaded in 16½ minutes, at the rate of 758.06 tons per minute¹⁹ Rapid turn-around of vessels is increased enormously by these loading facilities The average time spent in the ore loading ports declined from five hours, 47 minutes in 1923 to three hours, 58 minutes in 1928, and during the depression, when the amount of ore shipped was greatly reduced, it declined further to three hours, 43 minutes in 1931, and three hours, 37 minutes in 1934²⁰

At the lower lake ports where the ore is discharged, many receiving wharves are equipped with unloading machinery Modern ore unloaders are equipped with buckets having a capacity ranging from 5 to 17½ tons

The vessels as they enter, tie up along the face of the wharf on which are mounted the unloading machines operating on tracks These are usually operated in batteries of from four to six machines Vessels and machines are so designed as to enable an entire battery to operate on one vessel at the same time While the operation of unloading is in process, the ore is sampled in the holds of the vessel in order to determine its "test." As the ore is removed from the ship, it is weighed and carried to railroad cars running under the unloading machine for direct shipment to interior points or to stock piles to the rear of the dock for future consumption Some of the machines are designed to act as unloaders, distributors and loaders, while others are used for unloading to railroad cars or stock pile only The latter type requires bridge cranes in conjunction with them to distribute the ore uniformly over the stock piles and to load cars from them²¹

The most modern facilities can unload 10,000 tons in from three to four hours The record to date is 12,009 long tons of ore in two hours, 25 minutes, or 4,968½ tons per hour The average time spent in the lower lake ports where ore was unloaded dur-

¹⁷ Corps of Engineers and U S Shipping Board, The Port of Duluth Superior, 1932, p 39

¹⁸ *Ibid*, p 39, Lake Carriers' Association, Annual Report (1931)

¹⁹ *Ibid*

²⁰ *Ibid*, 1934, p 100

²¹ Transportation on the Great Lakes (1930), p 269

ing the decade 1924 to 1934 ranged from 21 hours, 17 minutes in 1924 to 10 hours, 25 minutes in 1934²²

The principal return cargo for the ore carriers is coal, and coal is also shipped to other ports. The lower lake ports at which the coal is loaded are equipped with specialized loading facilities.

The equipment at the lower lake ports in unloading lake cargo coal from hopper cars and unloading into vessels is usually of the car-dumper type. The loaded cars are rolled down to a pit by gravity where they are connected to a cable which draws them up the incline to the platen or dumper platform where they are clamped to the cradle. It is then raised and turned over through 180 degrees, dumping the coal into a pan. The empty car is revolved back to its normal position, loosened, and then pushed off by the next car coming up. It runs down an incline to the kickback, which sends it by gravity to the empty yard. The coal passes through a telescopic chute into the hold of the vessel.

As a certain amount of the coal carried to lake ports is loaded at the mines into box cars, an unloader for this class of car is also provided. The box car unloaders consist of rocking cradles with centering and locking devices for holding the cars. The loaded cars are pushed over a hump and run by gravity toward the cradles, just ahead of which they are stopped, the slot doors are removed, allowing part of the coal to run out into a small hopper, whence it is conveyed by an auxiliary conveyor to the main one, which runs under the rocking cradle to the tipple. The partly unloaded car is then drawn by a wire cable into the rocking cradle and after being securely clamped is tilted longitudinally, the ends being raised and lowered alternately. When the cars are unloaded, a machine called a "reciprocating scraper" enters the car through one of the side doors and prevents the coal from running back when the car is tilted. It forces the coal to run into small chutes, through which it passes to the main conveyors. After the coal reaches the tipple it is dropped into a pan, from which it passes through a telescopic chute into the hold of the vessel.²³

The loading record for bituminous coal was established in 1931 when 11,293 net tons and 250 tons of fuel were loaded in three hours and 30 minutes, or at the rate of 3,298 tons per hour.

Most of the upper lake ports at which coal is unloaded in large quantities are also equipped with mechanical facilities for unloading and handling coal. A typical coal-handling dock at Superior has been described as follows:

It has a total area of 45.2 acres, with a planked storage area of 35 acres. It has a storage capacity of 700,000 tons of bituminous and

²² Lake Carriers' Association, Annual Report (1934), p. 100.

²³ Transportation on the Great Lakes (1930), pp. 299-300.

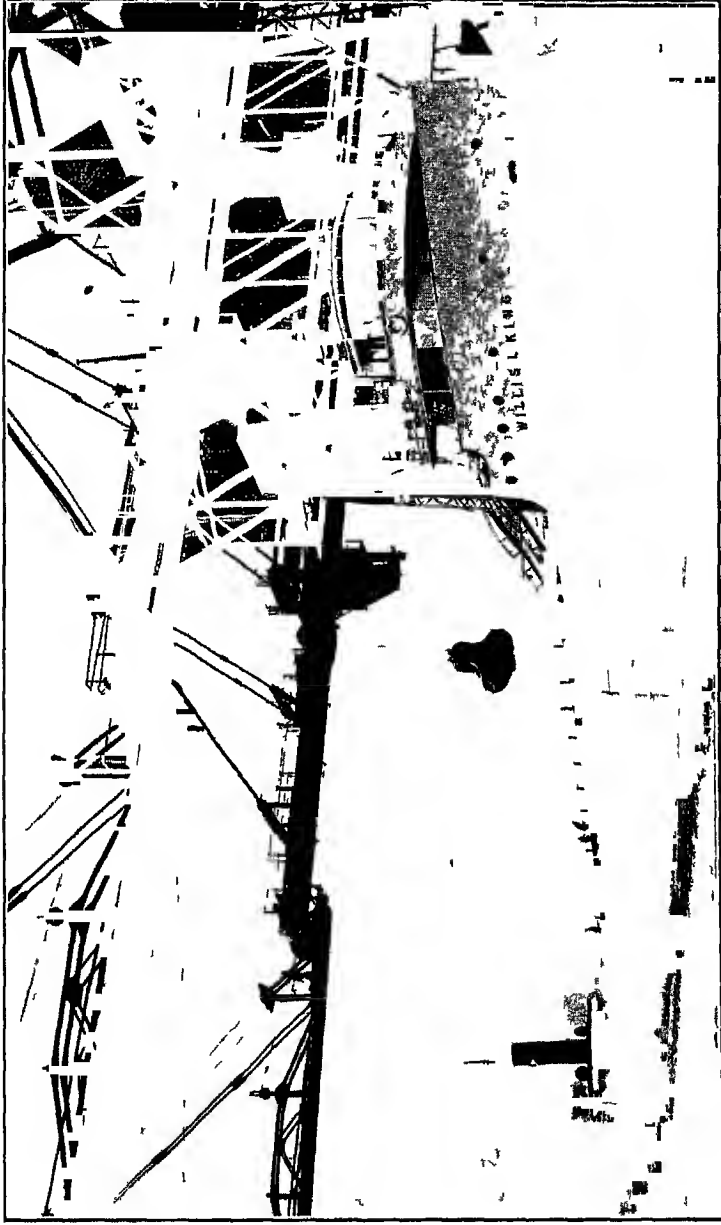
300,000 tons of anthracite coal and is electrically operated throughout, with steam-driven generating equipment maintained for emergency use. The equipment for handling coal comprises two Heyl and Patterson towers with 3-ton clamshell buckets, 4 Brown towers with 2-ton clamshell buckets, 3 Brown transfer cars, 4 triple-span Brown bridges, each with two "man-trolleys," one carrying 7-ton stocking buckets and the other carrying 4-ton shovel buckets, one Heyl and Patterson bridge with one "man-trolley" carrying a 12-ton clamshell bucket, one screening tower of 600 tons capacity per hour with an Ottumwa steel belt box-car loader. In addition there are two rows of timber bins 1,000 feet long, each with a capacity of 3,000 tons, with loading screens, three anthracite storage buildings, one anthracite screening and loading plant, three Ottumwa portable box car loaders, one tilting box-car loader at the anthracite loading plant, one 150-ton track scale and three 100-ton track scales.²⁴

The unloading record in the lake coal trade is 9,366 net tons of bituminous coal in six hours and five minutes, or at the rate of 1,540 tons per hour.

Much bulk grain is shipped eastward by water from the upper lake ports particularly from Fort William-Port Arthur, Canada, and from Duluth-Superior, Chicago and Milwaukee, and each of these ports, as well as several smaller shipping posts, is equipped with grain elevators. They vary in size and construction but many of them are fully equipped for the efficient mechanical unloading of grain from cais, loading into vessels, and for storage, inspection, cleaning and other requirements of the grain trade. Elevator S and annexes, at Duluth, which is a typical large elevator system, has a storage capacity of 11,000,000 bushels and by means of a tunnel is connected with another elevator having a storage capacity of 2,000,000 bushels.

The entire plant is operated by electricity, the current being furnished by a power plant located in an adjacent brick building. The motors for operating the elevator are located in the top floor of the cupola with a separate motor for each unit of the house. Movable power shovel or scraper-rigs are used. In this plant the bin hoppers underneath the cars are large, being nearly the length of an ordinary car. This makes it possible to unload cars without particular spotting. When the car door has been opened, the power shovel or scraper-rig is moved into position in front of the door and the grain scraped from the car. Two men and two scrapers are used, one working in each end.

²⁴ *Ibid.*, p. 311, see also report on the Port of Duluth Superior (1932), pp. 40-41.



UNLOADING COAL FROM A TYPICAL LAKE BULK FREIGHTER AT DULUTH-SUPERIOR, MINNESOTA

of the car. The track facilities provide for unloading 18 cars of grain in one setting, and the plant has a record of unloading 350 cars in 10 hours. Complete railroad yards are conveniently located for handling the cars, and these are connected with all roads through the Lake Superior Terminal and Transfer Railway. From the bins under the track the grain is elevated to the scales and then conveyed to storage bins. When it is shipped, it is again weighed, conveyed to the eight shipping bins, and delivered to the boats by gravity through spouts. There are two spouts to each bin, making 16 spouts through which grain is delivered. Twenty thousand bushels an hour are delivered through a single spout.²⁵

The lake grain loading record is held by Pool Terminal Elevator No. 7, at Port Arthur, Ont., which in 1932 loaded 302,000 bushels of wheat into a lake steamer in one hour and 55 minutes, at the rate of 2,626 bushels per minute and 157,565 bushels per hour.²⁶

The lower lake ports—Buffalo, Toledo, Fairport, Erie, Port Colborne, Midland, Port McNicoll, Goderich, Tiffin, Depot Harbor, Montreal and other American and Canadian ports—are similarly equipped with elevators for the mechanical unloading, loading, storage and handling of bulk grain. Buffalo, which is a great milling as well as grain distributing center, has 21 waterfront elevators with a storage capacity of 41,988,000 bushels. Vast quantities of grain are reshipped through these elevators, all of which with one exception make rail and canal deliveries.²⁷ The elevators of the several lower lake ports perform an important function in the shipment of lake grain via rail, barge canal and Welland Ship Canal to the Eastern Canadian and American ports of export and the milling centers of the United States and Canada. The wheat unloading record to date is 451,382 bushels in 15 hours, at the rate of 30,092 bushels per hour.

Specialized loading equipment is provided at some of the stone shipping and receiving ports of the Great Lakes. Large quantities are shipped from Calcite, Rockport and Alpena in Michigan, and from Sturgeon Bay, Wisconsin, and Sandusky and Kelley's Island, Ohio. "At the large ports, stone is handled in a

²⁵ Corps of Engineers and U. S. Shipping Board, *The Port of Duluth Superior* (1932), pp. 77-78.

²⁶ Lake Carriers' Association, *Annual Report* (1932), p. 80.

²⁷ Corps of Engineers and U. S. Shipping Board, *The Port of Buffalo*, 1931, p. 67.

manner similar to coal and iron ore, being carried along conveyors to the stock pile, then through hoppers to movable conveyors which deposit it in the ships. The average time for loading is four and one-half hours."²⁸ Many ports receive stone via lake carriers, the largest quantities, however, going to Chicago, Buffalo, Buffington Harbor, Indiana Harbor, Fairport, Cleveland, Wyandotte, Range River and Detroit. A number of receiving ports are provided with unloading machines, the modern type of which is equipped with clamshell buckets attached to movable bridges. As was previously stated, self-unloading vessels are engaged in the stone trade to some extent because not all receiving ports are adequately equipped with shore machinery.

Specialized port facilities are also provided at some lake ports for the handling of other special commodities such as sand, gravel, cement, oil, fish and lumber.

Package freight is shipped and received at many lake ports, the major portion, however, being concentrated at Buffalo, Detroit, Duluth-Superior, Chicago, Milwaukee, Cleveland and Alpena. As the total volume of these package movements is not large, the principal ports are provided with "terminals more than adequate for the traffic in package freight. Many waterfront properties which could be utilized for this purpose are idle, or very little used."²⁹ Not all of them, however, are adequately provided with direct rail connections, and many are not equipped with mechanical freight handling devices. The lack of rail connections is particularly noticeable in the case of numerous municipal package wharves and piers. The facilities and methods prevailing at improved package terminals are described as follows by the Corps of Engineers and Shipping Board in their report on the port of Buffalo:

The principal package freighters are equipped with side doors making it possible to load and discharge cargo without lifting it out of the hold and over the side to wharf deck. Also the slight variation in water level on the Great Lakes makes it possible to build landings with wharf decks at the package freight boat-deck level. These two factors aid to a great extent the movement of package freight. Hand trucks were used extensively at one time, but the change to modern electric tractors and trailers has been rapid. At the terminals which have been built in recent

²⁸ Transportation on the Great Lakes (1930), p. 340.

²⁹ *Ibid.*, p. 307.

years, the use of portable electric conveyors has proved feasible. With the advent of these modern methods, the time saved and the decrease in money expended in loading and discharging have been noteworthy.³⁰

An increasing number of lake package freight terminals are being equipped with conveyors, tractors and trailers, and a variety of cranes, derricks and hoists.

The terminals provided for car ferries are necessarily provided with direct rail connections and with tracks connecting with the ship itself. Loading and unloading is made possible over counter-balanced aprons equipped with tracks that connect the wharf with the stern of the car ferry.

The Lake ports are necessarily equipped with terminal facilities other than those needed for loading and discharging. All of the larger and many of the smaller ports have adequate facilities for providing vessel bunker fuel and supplies, electric current, water and ballast. Extensive storage facilities are provided at some of them. Tugs are provided to perform necessary towage services.³¹ Lighterage services are far less extensive than at the ocean ports where large quantities of general cargo are shipped and received, but some of the lake ports are equipped with a limited number of lighters, barges and scows. Several lake ports are equipped with marine repair plants, dry docks, repair boats and launches, wrecking and salvage facilities and with dredges and pile drivers.

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³⁰ Report on Port of Buffalo (1931), p. 24, see also report on Port of Duluth Superior, 1932, pp. 31-32.

³¹ See *Merchant Marine Bulletin*, March, 1931, pp. 6-7.

CHAPTER VI

TRANSPORTATION FACILITIES ON RIVERS AND CANALS

AN account of the transportation facilities employed in handling traffic on rivers and canals will naturally be concerned with a description of floating equipment and terminals. The operating organization by which the traffic services are performed is described later in Chapter XV. Moreover, it will be best to present the history of river improvements and canal construction by the states and the Federal Government in connection with the discussion of the inland waterway policy of the United States. Chapter XXXIII upon that subject contains a description of the principal canals and canalized rivers and of the improvements now being made in them. In connection with an account of the government's policy toward inland waterways, the results of the policy are set forth by stating the facts as to the present traffic that makes use of the waterways as they have been canalized or constructed.

The preceding chapter showed that the large traffic transported on the Great Lakes had brought about the construction and use of large vessels specialized in type with reference to different kinds of traffic, and that terminal facilities of great efficiency and economy have been designed and built to accelerate the handling of bulk freight and to reduce the costs of service. The traffic transported on rivers and canals, and the character of the waterways, have called for floating equipment and terminal facilities very different from those of the Great Lakes. The description of the facilities on rivers and canals may be briefly given as follows:

FLOATING EQUIPMENT

In the early period of navigation on the Mississippi and tributaries, as at present, downstream traffic was larger than upstream traffic. Many types of rivercraft were employed to float

the products of the newly settled region to southern markets. The canoe came into use first, followed by the "pirogues," made by hollowing logs. Later the flatboat and keelboat made their appearance, the former because carrying capacity was relatively high and cost of construction low, the latter because the design permitted "poling" or pushing upstream. The flatboat was invariably sold or abandoned at destination. Sailboats were employed to some extent but were never practicable. The appearance of the barge was followed almost immediately by the first steamboat to ply interior rivers, in 1811.¹ However, the combination of the barge and steamboat as a transporting unit was not in common use until after 1875. In the meantime, the famous, steam-propelled side-wheelers so frequently referred to in fiction were built in great numbers to extend a rapidly growing packet-service. From 63 cargo carrying steamboats in 1819 the number increased to 450 in 1842 and to 750 in 1855. Many of these early carriers were over 200 feet in length, and some of them exceeded 300 feet with beams in excess of 40 feet. Capacities of 1,000 tons were not uncommon.

After 1875, barges increased in number, and the towboat made its appearance to replace gradually the packet boats which were no longer able to compete with the railroads for the higher grade cargoes. The towboat and barge now transport practically all inland river commerce and much of the tonnage of canals, rivers and coastal waterways.

The modern barge is usually of steel construction varying in capacity from 500 to 1,500 tons. A number of exceptionally large ones are owned by the Inland Waterways Corporation and operated on the Lower Mississippi, the largest has a capacity of 3,000 tons, is 300 feet in length and has a beam of 48 feet. During 1933, the corporation contracted for 20 roll-top barges with the same overall dimensions as the largest in service, and 20 others somewhat smaller in size. The American Barge Line, Mississippi Valley Barge Line and numerous other private carriers operate similar equipment.

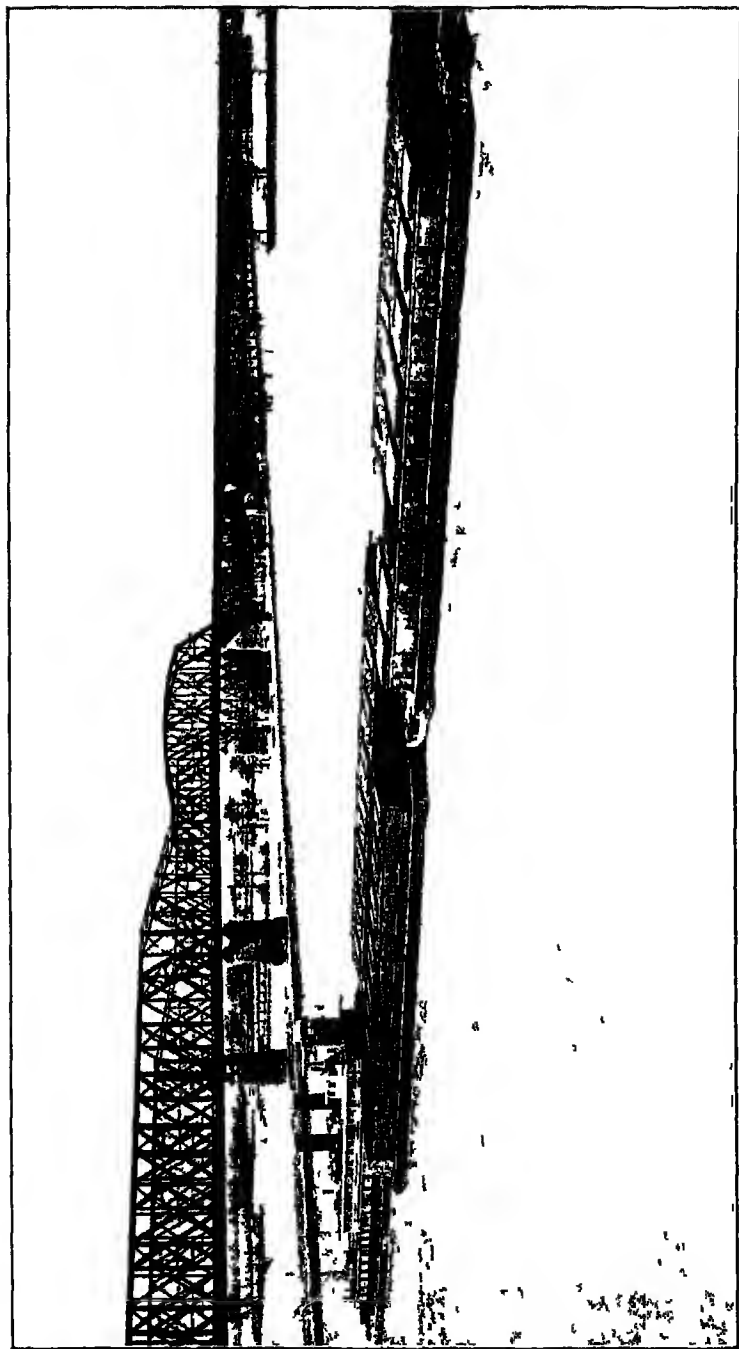
On the New York Barge Canal, the type of barge in general use resembles those of the Mississippi and Ohio although traffic

¹ Frank H. Dixon, *Traffic History of the Mississippi River System* (1909)

and physical characteristics of the canal dictate some difference in design. The average draft is greater, and covered barges are more numerous because a considerable amount of the canal freight is perishable as contrasted with the enormous tonnage of non-metallic minerals of the Mississippi system. Tank barges are numerous. During 1934 there were 557 scows and barges in use with capacities up to 2,400 tons. Self-propelled cargo carrying units are increasing in number on the Barge Canal. Many of them have been placed in service for the transportation of particular commodities by oil companies and large manufacturing corporations which demand a private through service between lake ports, New York City, and other Atlantic tidewater terminals. Most vessels with capacities of 1,500 tons or more are motor ships and all are propeller driven in contrast with the stern-wheel types heretofore prevalent on inland rivers. The Ford Motor Company recently placed in service the two large steamships *Edgewater* and *Chester*. These vessels are 300 feet in length, the maximum permitted in the canal, and have a beam of 43 feet. Because of low bridge clearances all superstructure is collapsible, the pilot houses sinking into wells and the stacks and masts falling flush with the decks when passing under obstructions. Power is supplied by two 800-horse-power turbines operating at steam pressure of 425 pounds with 200 degrees of superheat generated by oil-burning boilers. Propelling machinery is concentrated in 10 per cent of the overall length to increase cargo capacity, and ability to maneuver in restricted channels is made possible by dual rudders which permit turning of the vessel when there is little forward motion. Other self-propelled units of late construction, including tankers, are more often powered by diesel engines. The average capacity of barges and self-propelled equipment was 828 tons in 1934, 769 tons in 1933, and 736 tons in 1932.²

On the Mississippi system, relatively fewer self-propelled cargo carriers are used and steam power has been adhered to quite generally. Until recently the stern-wheel type of towboat was used almost exclusively. Late additions to floating equipment on the lower river have departed from the conventional design of the past. Many small diesel engines have been installed in new

² Annual Report, Superintendent of Public Works, Albany, 1934



BARGE FREIGHT SERVICE WITH PROPELLER TOWBOAT ON THE MISSISSIPPI RIVER

equipment, some of them with electric drive. With one exception the largest craft employ steam for power. However, the exception is the diesel-driven *Herbert Hoover*, reputedly the most advanced in design of all river towboats but not the most powerful. This modern towboat is 230 feet in length and develops over 2,000 horse-power. Use of propellers is made possible on this and other recently built river craft despite their relatively shallow draft, by designing the hull in a manner providing for propeller tunnels in the stern which afford both protection and sufficient depth of water for efficient operation of the screws. The Mississippi Valley Barge Line operates four modern steam-driven, oil-burning towboats of 2,000 horse power built in 1930 at a cost in excess of \$425,000 each. Their dimensions are length 200 feet, beam 40 feet, draft 7 feet. As depths of water are increased it is probable that the conventional stern-wheelers will gradually disappear on the Mississippi.

TERMINALS³

Complete and economical inland waterways services depend upon adequate terminals, as well as upon suitable channels and floating equipment. The creation and maintenance of navigable channels by the Federal Government is but the first step. The necessity for terminal facilities was recognized by Congress in the Rivers and Harbors Acts of 1919 which contained the following paragraph setting forth a definite policy to be followed with regard to future expenditures for river and harbor improvements:

It is hereby declared to be the policy of the Congress that water terminals are essential at all cities and towns located upon harbors or navigable waterways, and that at least one public terminal should exist, constructed, owned and regulated by the municipality or other public agency of the State and with the view of carrying out this policy the Secretary of War is hereby invested with the discretion to withhold moneys appropriated in this act for new projects, if, in his opinion, no water terminals exist adequate for the traffic and open to all on equal terms, or unless satisfactory assurances are received that local or other interests will provide such adequate terminal or terminals.

Unfortunately, local public interests have been unable to finance public terminal constructions in large numbers. Fre-

³ See final report National Waterways Commission, 1912, Sen. Doc. 469.

quently, traffic immediately available has not warranted the assumption of such an expense by the various river cities despite satisfactory depths of channel. Until recently private interests have been responsible for the majority of modern terminals. However, several municipalities have financed public terminals, and in almost every instance maintenance and interest charges have greatly exceeded the returns from the ventures.

Terminal construction on the banks of rivers presents many difficulties not encountered at most ocean ports. The most troublesome factor arises from the wide variation in stream levels between flood and low water stages, a difference at times amounting to as much as 60 feet at some points on the Mississippi and considerably more than that on the Ohio. Average annual fluctuations are not so large, however. At certain European seaports having wide tidal variations enclosed basins are constructed which permit the maintenance of constant water levels independent of the rise and fall of the tides, but such construction is not practicable on inland waterways.

WATER LEVEL FLUCTUATIONS OF THE MISSISSIPPI RIVER ⁴

Point	Average	Maximum
Cairo	40	57
St. Louis	25	44
Grafton, Ill.	17	33
Baton Rouge	30	47

Considerations of a different nature frequently dictate the location of terminal facilities. The success of transportation by water lies in its proper coordination with other agencies, particularly the railways. Because of the small amount of traffic originating upon the banks of rivers, the carriers are dependent upon rail and highway connections to complete their services. The principal railway lines have been constructed long since, and waterway terminal location is governed by the necessity for interchange of traffic at strategic points. In this manner suitable points are limited in number to those cities large or small that offer an opportunity for traffic interchange with the railways,

⁴ Chief of Engineers, U. S. Army, Annual Report (1931).

it is by means of this tonnage as distinguished from purely port to-port or originated tonnage that the carriers by water hope to expand. In reality, river terminals are patterned quite closely after those of the railways as regards handling methods and not after ocean terminals as might be expected. Inland waterway transportation is more nearly an adaptation of waterway traffic to rail traffic, than an adaptation of river to ocean traffic.⁵ Packing and crating practices prevailing in domestic commerce differ considerably from the requirements for overseas trade and the railways are responsible for the development of the rules for protecting domestic shipments. Thus the inland waterways are more or less compelled to accept the package freight as it comes from the railway cars and motor-trucks and to give due regard to this factor in designing terminals, and in accepting freight that will be transferred to the railways for delivery. Terminal machinery must be properly laid out to afford careful handling and attention to stowing and stacking to prevent loss and damage as well as to provide expeditious movement through terminals.

Facilities for the handling of freight on the Mississippi and tributaries may be divided into (a) bulk and (b) package terminals, according to the commodities moving through them. Package terminals of several types have been built and others of different type suggested as an improvement over those already constructed. The pontoon type, as employed in Europe, includes a permanent warehouse located above high water with a floating platform alongside that rises and falls with the stream. The platform or pontoon is held in place by iron rings encircling piling of sufficient height to retain the anchor rings at any water level. At lower stream levels cargo is carried between the warehouse and the pontoon by cranes. The river and rail terminal at Nashville is similar in principle, but instead of a floating platform, the terminal building includes several floor levels which permits freight handling at any stage of the river. This type is not in common use because it is costly to build. Throughout the length of the Mississippi, wharf boats are utilized in creating terminals. In such cases, the terminal consists of floating wharf boats to which the river craft may make fast during the transfer of

⁵ W. F. Schultz, Permanent International Association of Navigation Congresses (Vienna, 1931)

freight The doors of the barge superstructure and the wharf boat are spaced to come opposite one another when the barge is moored alongside

Connection of the wharf boat with the railroads and highways is made in a number of ways Usually the most efficient method is by means of escalators, or other adaptations of that principle, which convey specially designed trucks or in some cases the actual merchandise to the transit shed at the top of the river bank The escalator is supported at the river end by a permanently fixed pier with a frame which permits the end of the escalator to be raised or lowered according to changes in water level A variation of this type of terminal is found where the rise and fall of the river is greatest A fixed incline running to the water edge replaces the movable escalator, and contact with barges or wharf boats is made over an adjustable cradle which extends from the incline to the wharf boat The use of fixed inclines is general on the lower Mississippi, with the movable escalator predominating on the upper river and the Illinois and Missouri Frequently the tracks of railways serving the city are extended to the river edge permitting direct interchange of freight between the wharf barge or cargo barge and the railway The connection is accomplished by laying track at a small angle with the channel on a grade usually not exceeding $3\frac{1}{2}$ per cent, at the water's edge cradles are used to provide trackage for the remaining distance to the car float adjoining the wharf barge or cargo barge Examples are found at Memphis and Cairo

At many cities along the Ohio and at some points on the lower Mississippi paved levees have been constructed with anchor rings for the mooring of barges or wharf boats Goods are carried to and from the barges by trucks The municipal terminals at Cincinnati, Evansville and Louisville are of this type It is comparatively easy to construct and requires little or no machinery More modern terminals of the vertical lift type employing cranes and telfers are used at St. Louis and Baton Rouge to transfer shipments between a permanently fixed dock house or warehouse and the cargo barge By extending telfer tracks cargo may be picked up or deposited at any point in the dock house or on the shipping platform *

* See Report by W. F. Schultz, *Ibid*

Bulk terminal facilities for loading coal, coke, sand, ore and similar commodities usually consist of tipples and hoppers permitting the loading of the barge by gravity, a very economical method when there is little danger of damage from abusive handling. Practically all bulk terminals on the Ohio and many of those on the Mississippi are the property of coal, sand and gravel, and steel companies. Unloading of certain bulk commodities requires equipment of a different type. Clamshell buckets or bucket conveyors are probably the most efficient and are in common use on the Mississippi system. Articles usually classified as bulk but damageable by rough handling are usually loaded by cranes. Iron or steel pipe, structural shapes and bars are seldom loaded by gravity. At downstream points of destination they frequently move through the same terminals as freight of higher value because port equipment does not include special bulk handling facilities. In recent years, construction of terminals by municipalities along the Mississippi has increased, but private interests own approximately 80 per cent of the improvements. The majority of privately owned terminals, however, have been designed for the loading and discharging of low grade products of a specialized nature and are little used by carriers of general cargo. The newer municipal wharves are not only larger and of more expensive construction, but at many cities they provide the only means of transfer for package freight or general cargo. Important public owned terminals are found at Minneapolis, St. Paul, St. Louis, Rock Island, Memphis and New Orleans. Few cities along the Ohio have provided terminals because almost all traffic is accounted for by a few articles of bulk for which port handling equipment is constructed by the companies or corporations engaged in producing or marketing them. At the beginning of 1929, only 12 of 275 terminals were operated by municipalities. Cairo, Evansville, Louisville and Cincinnati are important among those cities making provision for public wharves. The levee type is most common, and little provision for handling equipment has been made, because the volume of freight of higher grade has not justified the expenditure.

In every port of consequence on the New York State Barge Canal System and at several points in New York harbor, the state has made provision for terminal facilities which are

administered by the Division of Canals and Waterways of the Department of Public Works Included in the total of 65 port improvements representing an expenditure exceeding \$26,000,000 are grain elevators located at Brooklyn and Oswego with capacities of 2,000,000 and 1,100,000 bushels respectively

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PART II

WATER TRANSPORTATION
ORGANIZATION, AGENCIES
AND SERVICES

CHAPTER VII

EVOLUTION AND COMBINATION OF OCEAN CARRIERS

For the performance of the many services of transportation by water, a high degree of organization has developed. To describe this organization it is necessary to discuss at least four aspects of the subject: the evolution and present organization of carriers by water, the relations of the carriers with each other, the relation of the carriers with the public, with shippers and with travelers who purchase the service, and the relation of the carriers with the government, or the policy and practice of governmental aid and regulation. In the present chapter the evolution and present combination of ocean carriers will be considered.

The present ocean transportation service is the result of an evolution of many centuries. After the disintegration of the Roman Empire, the Venetian merchants sent their vessels out in fleets accompanied by naval convoys, the cargo vessels of the fleets being owned by the merchants themselves. Later it became the practice of trading cities to unite in leagues. During the fourteenth to seventeenth centuries, for example, the trade and shipping of the Baltic and North seas was controlled by the Hanseatic League of the Northern German commercial cities. In the latter part of the Middle Ages, the Venetian trading fleets and the Hanseatic League were supplemented by the chartered trading companies of England, France and Holland, which received monopolies of the trade in certain sections of the world or in certain staple commodities. Such were the famous British East India Company, the Dutch East India Company, the Muscovy Company and the early trading companies operating in America.

EARLY TRADING COMPANIES AND MERCHANT TRADERS

The ocean vessels in the earliest stages of American commerce were owned by individual merchants who transported occasional

cargoes for their neighbors but used their vessels mainly to conduct their own trading enterprises They disclosed such lucrative possibilities that a number of large trading companies were soon organized The British West India Company, the Dutch West India Company, the London, Plymouth, Massachusetts Bay, the Canada and New Amsterdam companies for a time conducted most of the trade and shipping of the New World They were colonization, governing and land companies, but their principal purpose in most instances was trade and shipping

These trading companies, however, lost their monopolistic trading rights long before the Revolutionary War

After the Dutch lost New Amsterdam, in 1664, the trading company had no place in the commerce of the American colonies, which was handled by the independent traders of Great Britain and the American colonies, and was, as a matter of fact, developed mainly by the colonists themselves, who, as fishermen, merchants, farmers and planters, individually operated such vessels as their business required, or as their instinct for foreign ventures prompted Conducted in this individual and unorganized manner, the oversea trade of the colonies grew slowly, but more or less steadily, until the establishment of the National Government under the Constitution made possible the rapid expansion of the maritime activities of America The increasing trade of the people of the United States brought about both a technical improvement in shipping and a higher degree of organization in the service of ocean transportation

The first result of the growth of the foreign trade of the United States during the latter part of the eighteenth century and the early years of the nineteenth was to develop the great merchant trader, such as Stephen Girard, of Philadelphia, and Elias Hasket Derby, of Salem, Mass Girard was active in commerce from 1780 to 1812, and lived until 1831, Derby died in 1799 The manner of carrying on ocean commerce in Derby's time is well described by W L Marvin in his book on *The American Merchant Marine*, in the following passage (p 198)

Those old Salem merchants were shipowners, and something more They did not, as a rule, carry freight for others When Mr Derby or Mr Gray or Mr Peabody built a ship he calculated to use it in his own mercantile ventures He would furnish it with an outward freight, and

the sale of this procured a homeward cargo, which the merchant would dispose of from his own warehouses Mr Derby owned about forty vessels, and the largest of them made forty-five voyages for him to India and China Most of his enterprises were very successful

The ships operated by Derby and the other merchant traders of his day were small sailing vessels of 300 tons and less Such vessels could readily be built and fitted out with crew and cargo by an individual with but a small amount of capital, who would have been unable to own and operate a number of vessels and to engage in the carrying service as distinct from the business of a trader Traders who had insufficient capital to provide themselves with vessels individually, purchased ships cooperatively, and they, too, operated them primarily in connection with their own trading ventures Sometimes the owner of a "supercargo" would go with the vessel to conduct the trading at the end of the voyage in far-away ports, often, too, the captain of the vessel was a skilled trader as well as a navigator, and sometimes he as well as the vessel's crew were permitted to share in the profits of the voyage Some vessels were similarly owned and operated by producers, such as the tobacco planters of Virginia

RISE OF COMMON CARRIERS

The transition from private carriers owned singly or cooperatively by merchants and producers to public or "common" carriers was gradual Some of the merchant-shippers had frequently transported cargoes for others in addition to their own wares, and they had carried the mails and small numbers of passengers The practice of hiring or chartering ocean vessels from their owners also became more common as the demand for public carriers grew¹ The War of 1812, however, marked the real turning point in the transition The merchant carrier lost ground rapidly during the trade expansion which followed the restoration of peace in Europe and America²

The two types of public ocean carriers that emerged were the chartered or "tramp" vessel and the ocean liner The tramps depend in part upon their owners direct and in part upon ship

¹ J R Smith, *The Ocean Carrier* (1908), p 94

² E R Johnson and Collaborators, *History of Domestic and Foreign Commerce of the United States* (1915), II, p 118

brokers to supply them with cargoes. They operate upon the basis of charter contracts or "parties" which cover either a given voyage or a stated period of time. Some vessels are owned by individual shipowners, some by the captains who operate them, some by partnerships, and others by companies. In the past the partnership type of ownership, in which a vessel was divided into shares ranging from one eighth to one sixty-fourth of its value, was of great importance. The practice of dividing vessels into eighths was especially common in Great Britain from 1840 to 1850, and the British sixty-fourths became of importance during the years 1850 to 1880.³ At present, ownership by companies, some of which are small concerns while others own many tramp sailing vessels or steamers, is of principal importance, both because of the limited liability which the stockholders of a corporation legally enjoy and because a modern tramp steamer is larger and the capital needed to construct it is much greater than in the old sailing vessel days.

As the foreign trade of the United States and the passenger traffic between Europe and America became large and of fairly constant volume, ocean transportation came to be a business increasingly distinct from the business of the merchant or trader, and lines of sailing vessels were put into service by numerous companies whose sole business was the ownership and operation of ships as common carriers.

Efforts to establish ocean lines were made before the Revolutionary War, but the vessels advertised did not perform a regular line service. According to Marvin, the first line of sailing vessels in the American trade was the Black Ball Line, which began running between New York and Liverpool in 1816. He states that "in 1822 a second line to Liverpool was founded, in the next year a third line to Hull." The ships of these "packet" lines, as they were called, were larger than the ordinary merchant vessel of their time, they had regular sailing dates, they carried the mails, the cargoes of highest value and the steerage and cabin passenger traffic. These early packet ships were stanch vessels, constructed for safety and economy rather than speed. The demand for speed came later, and was met by the lines of clipper sailing vessels and by the steamship lines.

³ A. W. Kirkaldy, *British Shipping* (1914), pp. 165-170.

The lines of sailing "packets" and clippers were gradually superseded after 1850 by the steamship lines. For the United States this meant a decline in the tonnage of registered shipping, for Great Britain it meant a rapid expansion of her merchant marine, for the ocean transportation service generally it was the beginning of a rapid development. The first effect of steam was to increase the speed and regularity of ocean transportation, and thus to cause a rapid growth in the traffic for which lines of vessels—as contrasted with the chartered ship without a fixed route and a definite schedule—are best adapted, viz., passengers, mail and express, package freight or general cargo, and perishable commodities.

SOME PRESENT STEAMSHIP LINES AND COMBINATIONS

Since 1850, the small steamship company operating four or five small vessels over a single route has grown to be a company or combination of companies, owning scores of ships, with an aggregate tonnage of from 100,000 to more than 1,000,000 tons gross, and engaged in traffic over numerous ocean routes. Men who manage ships like those who control other industries are ambitious to convert small enterprises into larger ones. Moreover, a large-scale business is usually, though not always, more profitable per unit of service or of product. If, however, competition becomes excessive, as is the tendency among rival ocean carriers, it may destroy profits. As ocean steamship companies became large, their competition was increasingly severe, and they sought to control their rivalries by associated action through traffic agreements or more fully by the amalgamation or consolidation of competing companies. Carriers by sea as well as by rail have sought and still seek to substitute associated effort and larger corporate unity for the unorganized struggle of competitive enterprises.

In each of the principal maritime countries, other than the United States, the main steamship lines have been brought together under the control of large consolidations. In Germany, the overseas shipping has long been owned and operated mainly by two companies, the Hamburg-American and the North German Lloyd, and their subsidiaries, and as is explained below these two large companies in 1930 entered into an agreement

(modified in 1933) providing a large measure of cooperative management of services and traffic Great Britain, having by far the largest marine of any country, has many large shipping companies, and these large companies have gone far in developing combinations and groups

The Peninsular and Oriental and its subsidiaries, with a total gross register tonnage of about 2,500,000, is one of the world's largest shipping combinations Other large British companies are the Royal Mail Steam Packet Company, the Cunard White Star Company, the Furness-Withy Company, the Ellerman, the Alfred Holt, and the Canadian Pacific Lines The last named company is exceptional in that its strong steamship lines on the North Atlantic and the North Pacific are additions to its transcontinental railroad service

The evolution of large scale shipping under the British flag is well illustrated by the Royal Mail Chartered in 1839, the Royal Mail Steam Packet Company developed services to Africa, South America and elsewhere and became a typical carrier of British commerce to many parts of the world When the World War began, the Royal Mail was operating a fleet of 62 vessels, having a gross tonnage of 306,000 tons, and had a controlling or large financial interest in numerous other companies, the largest of which were the Lamport and Holt Line, the Pacific Steam Navigation Company, Elder, Dempster and Company and the Union Castle Line, the parent, subsidiary and affiliated companies having about 330 vessels with a gross tonnage of 1,618,000 After the War, the Royal Mail continued its policy of expansion by purchasing a share controlling interest in several large companies The largest of the companies was so acquired in 1927 when the White Star Line and its subsidiaries were purchased from the International Mercantile Marine Company The White Star Line through the Ocean Steam Navigation Company, in 1932, owned vessels having a gross tonnage of 382,478 and through subsidiaries controlled 268,180 tons gross, a total of 642,658 tons Unfortunately for the Royal Mail, its rapid expansion during the decade preceding the prolonged business depression that started near the end of 1929 caused the company to be in a vulnerable financial condition There was a corporate and financial readjustment of its affairs in August, 1932, and

in 1933, the Royal Mail sold the White Star Line to the Cunard Company. The extended period of reduced traffic has made the financial future of the Royal Mail rather uncertain, as is true of other shipping companies and business enterprises not only in Great Britain but elsewhere. On the whole, however, the business depression has made combinations in shipping more necessary and has tended to further rather than to retard the movement. This is evidenced by the merger of the Cunard and White Star Lines, which was required by the British Government as a condition of the liberal aid given by the government to the Cunard Company in 1934.

In the French merchant marine, three large companies have acquired strong positions. In part they divide their fields of operation territorially, and in part they pool services, and they have agreements with smaller companies. Moreover, the three principal small companies have interlocking directorates. The directorates of these companies also have members in common with the directorates of the three large organizations. Competition among French shipping companies is thus kept well under control. The largest of the three big companies, the French Line, *Compagnie Générale Transatlantique*, operates across the North Atlantic, to the Pacific ports of North and South America and to the ports of Morocco, Algeria and Tunis. The *Messageries Maritimes*, and its affiliate, the National Mail Steamship Company, have services to the Far East, Australia and Madagascar, and to the Baltic ports. The *Chargeurs Réunis* operates to South America, Africa and Indo-China, the traffic with Indo-China being pooled with the *Messageries Maritimes*. France gives liberal government support to its marine and exercises control over the companies aided. The French Line has received largest aid and as a condition of this aid the government holds a majority of the company's capital stock and names a majority of the company's board of directors.

The history of the two all-important German steamship lines, the Hamburg-American and the North German Lloyd, affords an excellent illustration of the evolution of large scale shipping operation and of the coordination of the management of large companies to regulate competition in services and charges. Both companies have had a long and typical history, and their present

relations with each other and with the government exemplify current tendencies in shipping policy

Starting business with a few sailing vessels in 1847, the Hamburg-American Packet Company grew with the expansion of the foreign commerce of Germany, extending its services to new routes, adding steamers to its fleet and acquiring ownership of other steamship companies, until, in 1914 at the outbreak of the World War, the Hamburg-American Line owned 430 vessels, large and small, with a gross tonnage of 1,360,000. One half of these vessels, totaling 1,168,000 tons gross, were operated in over 70 services in the overseas trades. The services of this and its contemporary steamship combinations were like that of a great railroad system with trunk lines and branch lines or feeders. The company operated on routes from Hamburg to Mexico and Cuba, to Japan, China, Singapore, Penang and Manila, to India, to Brazil, to the River Plate, around Cape Horn to the western seaboard of South and North America, to the Persian Gulf, and to many ports on the west coast of Africa. Its many North Atlantic services were from Hamburg to Halifax, St. Johns, Montreal, Boston, New York, Baltimore, Newport News, and Norfolk, Savannah, New Orleans and Galveston. It also operated out of New York to many destinations—to Brazil, the West coast of Africa, Genoa and Naples, Cuba, Haiti, Colombia, Panama, and to Oriental ports. From these trunk line routes were branch line services too numerous to mention. The total number of ports served were about 300 and were located in all parts of the world.

The strength of the Hamburg-American Line and of the German merchant marine in general is evidenced by their development since the World War. Aided by government loans and with assurance of government support the reorganized Hamburg-American Line has been able to resume services to practically all sections of the globe either with its own vessels or by means of connections with other German and with foreign steamship lines. In 1926, it annexed by merger the German-Australian Steamship Company and the Kosmos Steamship Company, both important acquisitions. In 1929 the German Government awarded the Hamburg-American Line \$42,000,000 for property that had been confiscated during the War. At the beginning of 1934 the

Hamburg-American Company had 152 sea-going vessels, and tugs and other small vessels to the number of 221, the total tonnage of all vessels being 954,346 tons gross register⁴

The North German Lloyd has had a history similar to that of the Hamburg-American. Chartered in 1857 the company grew rapidly and became especially strong in the passenger service as its competitor, the Hamburg-American, became in the freight traffic. When the World War began, the North German Lloyd and its controlled lines had a total deep-sea tonnage of about 825,800 tons gross, and like the Hamburg-American Line it has had a rapid post war recovery. In 1925, the Roland Line, the Hamburg-Bremen Africa Line and the Horn Steamship Navigation Company were merged with the North German Lloyd, in 1930 the Neptune Company with its 75 vessels was taken over, and the following year the Lloyd Company acquired a majority of the capital stock of the Hansa Company which had 42 steamers and six motor vessels with an aggregate gross register tonnage of 308,280. At the beginning of 1934 the North German Lloyd included 99 sea-going steamers and motor ships of an aggregate 701,751 gross register tons, while its own fleets and those of its subsidiaries and affiliates totaled 468 vessels of 831,482 tons gross register. Of this total 404 vessels with a gross register tonnage of 771,418 were owned by the North German Lloyd, the remainder by its affiliates. Thus the North German Lloyd combination was again as large as it was before the World War⁴

The most recent, and in some ways the most significant, major event in the evolution of combination in ocean shipping is the agreement entered into by the Hamburg-American and North German Lloyd companies in 1930 (modified in August, 1933). This agreement provided that each company's accounts should be kept by a common system and that it should be the policy of the companies to pool profits and losses and thus to limit competition. This agreement seems not to have been considered satisfactory by the Nazi Government, and the two companies were required to modify the agreement in the summer of 1933. While the agreement as modified in August, 1933, apparently

⁴ Most of the vessel tonnage figures and some other statements of facts in this account of shipping combinations are taken from *Moody's Manual on Industrials* for 1934.

discontinues the pooling of profits and losses, it strengthens and extends the pooling of the North Atlantic services and traffic of the two companies, and provides for their cooperative management. January 3, 1934, it was announced that the two companies had organized the North Atlantic Association Hapag-Lloyd to coordinate the North Atlantic services of the two companies. It was provided that the managing director of the North Atlantic Association should have an office for the first two years in Bremen (the home of the North German Lloyd) and for the next two years in Hamburg (the home of the Hamburg-American). A Hamburg-American official was made assistant director of freight traffic and a Lloyd official assistant director of passenger traffic. There is similar cooperation of the management of the traffic affairs of the companies in their New York office. The announced intention of the two companies is to substitute cooperation for competition in their freight and passenger services on other routes than the North Atlantic.

The Merchant Marine policy of the Italian Government under the Mussolini regime is especially characteristic of recent tendencies. Government aid to shipbuilding and operation was liberal after the World War. The policy of the government was to provide for the territorial division of Italian shipping companies among the fields of Italy's foreign trade. The development of this program resulted, in 1931, in the adoption of the plan of consolidation whereby the three Italian lines on the Atlantic—the Navigazione General Italiana, the Lloyd Sabaudo, and the Cosulich lines—were merged into the Italian Line, and the remaining Italian shipping was organized under three companies, each having its own field of operation. The Tirreona has the South African Trade Route, the Lloyd Triestino operates to India and the Far East, and the Adriatica serves Italian commerce with fleets operated to the Adriatic, Aegean and Mediterranean ports.

The development of shipping combination in Japan has proceeded rapidly. In 1931, the two large Japanese steamship companies, the Osaka Shosen Kaisha, and the Nippon Yusen Kaisha, entered into a pooling agreement and in the following year they took a further step toward consolidation by adopting an agreement whereby the two companies and a third, the Kinkai Yusen

Kaisha, which is an affiliate of the Nippon Yusen Kaisha, have a single management. The three companies have stopped short of consolidating their finances, but a complete merger in the not distant future would seem to be the logical outcome of what has thus far been done. The small steamship companies, January 1, 1932, formed the Cooperative Shipping Union of Japan, the purpose of which is further to unify operations and lessen competition among the members of the Union, each company meanwhile maintaining its own financial autonomy.

Consolidation is less developed in the American Merchant Marine than in the shipping of other countries. This situation is due to the fact that for three or four decades before the World War, there were few ships under the United States flag outside of the coastwise trade. American shipowners were not able to cope with their foreign competitors. Moreover, shipping combinations, such as have been formed in Europe, would violate the anti-trust laws still in force in the United States, indeed it was the enactment of the Shipping Act of 1916 that first made it legally possible for American steamship companies, with the approval of the United States Shipping Board, to become members of the "conferences" which were the organizations by which rival steamship companies sought to regulate inter-line competition in services and rates. The tendency of the Federal Courts has been to interpret the anti-trust laws liberally, only unreasonable restraint of trade being held to be illegal. A combination of competing ocean steamship lines under the American flag would not now be unlawful unless it resulted in an unreasonable restraint of trade, but it would seem to be difficult for a shipping combination under a single financial and administrative control to apportion ports among its several lines, to pool competitive traffic and to fix minimum rates for such traffic without accomplishing the practical elimination of the competition that prevailed among the several companies before they were brought within the combination.

The largest and the most enduring ocean shipping combination under American corporate control is that formed by the International Mercantile Marine Company, which in 1933 owned all the capital stock of five steamship companies (there being four operated services) and which also had "an important in-

terest in the capital stock''⁵ of another company which owned two companies each operating a service. The history and experience of the International Mercantile Marine Company cover more than three decades and are illustrative of the conditions affecting American shipping consolidation. The president of the company from 1921 to the present has been Mr P A S Franklin, and the story of the origin and composition of the company may well be told in his words ⁶

The International Mercantile Marine Company was created as the result of the efforts of the late Mr Clement A. Griscom, of Philadelphia, and Mr Bernard N. Baker, of Baltimore. Mr Griscom was president of the American Steamship Company, which was formed in Philadelphia in 1870 and operated under the name of the American Line a regular service between Philadelphia and Liverpool. He was also largely interested in the International Navigation Company. This company had purchased the fleet and good-will of the Red Star Line, which maintained services between Philadelphia and Antwerp. Mr Bernard N. Baker was president of the Atlantic Transport Company, which maintained a line of freight steamers running between Baltimore and London.

These gentlemen and their associates were the only American owners and operators in the transatlantic steamship trades that were then in existence, and in fact no other American interests were in that service up to the time of the World War except the International Mercantile Marine Company, their successors.

At the time of the formation of the International Mercantile Marine Company and until the outbreak of the World War national interest in shipping had not been developed in the United States. Mr Griscom and Mr Baker had striven unsuccessfully for years to persuade the United States to aid them in developing their activities exclusively under the American flag, but the American people and Congress were indifferent.

Under the circumstances Messrs. Griscom and Baker believed that it would materially strengthen their position if they merged their interests and acquired foreign-flag tonnage. With this object in view they induced Messrs. J. P. Morgan & Company to cooperate with them in the purchase of the White Star Line, The Leyland Line, and The Dominion Line Steamers. The vessels of the White Star Line constituted the finest British fleet in the transatlantic trade. The Leyland Line was one of the finest freight fleets trading to North Atlantic and Gulf ports. The Dominion Line was a combined passenger and freight service trading to Canada and North Atlantic ports. Through the acquisition of the

⁵ Report of the International Mercantile Marine Company for the year ending December 31, 1931.

⁶ From a statement made by Mr. Franklin Oct. 4, 1921 at a hearing before the United States Shipping Board.

White Star Line (the corporate name of which is Oceanic Steam Navigation Company), the International Mercantile Marine Company acquired a substantial interest in the corporation of Shaw, Savill & Albion, Ltd, which also owned and operated a number of first class freight steamers. In conjunction with this purchase the interests of Messrs Griscom and Baker were merged in the International Mercantile Marine Company, which took over the ownership of these purchased properties.

The companies that were brought under the ownership and control of the International Mercantile Marine Company in 1902 included the American Company (the American Steamship Company), one company (the Atlantic Transport Company) which was really two companies, one chartered in Great Britain and one chartered in West Virginia, one Belgian company, the Société Anonyme de Navigation Belge-Américaine, whose fleet, the Red Star Line, and good-will had previously been acquired by the International Navigation Company—incorporated in Great Britain, and the three British companies, that owned respectively the Leyland Line, the Dominion Line, and the White Star Line. The last-named line and its subsidiaries were the largest component of the combination. The Oceanic Steam Navigation Company incorporated in Great Britain is the corporate owner of the White Star Line.

The International Mercantile Marine Company started in 1902 with a combined fleet of 136 vessels having a total gross register tonnage of 1,034,884. Only a very small share of the fleet consisted of American-flag vessels. The combination really represented the purchase by Americans of the capital stock of several foreign steamship companies which continued to operate as they had been operating. Naturally the British Government and people were alarmed by this transfer to American financial control of a large tonnage of British ships, and the British Government promptly gave added support to the Cunard Line by loaning the company at 2¾ per cent interest funds to build two big express liners, the *Mauretania* and *Lusitania*, and by granting mail subventions sufficient to pay the interest upon and to amortize the loans. This action by the government evidenced public opposition to transferring a large tonnage of British shipping to foreign control. The International Mercantile Marine Company, however, met the situation by obtaining an

agreement with the British Government in 1903 whereby the British ships of the company were to continue to receive government assistance and mail contracts on the same basis as ships owned by British subjects, it being provided that the British ships of the International Mercantile Marine Company could not be transferred to the flags of other nations without the consent of the Board of Trade

Without going into detail as to the history of the International Mercantile Marine Company, it may be stated that while the constituent companies were generally prosperous up to the business depression that began to be felt in 1930, the parent company has not been financially successful. Even the holders of preferred stock received but a part of their dividends. Its bonded indebtedness was, however, brought down from \$70,226,000 in 1914 to \$14,595,000 in 1933, and the writing off of the annual depreciation of vessels owned has been regularly and apparently well provided for. The severe and persistent business depression has reduced the company's income from the vessels it operates and has caused the suspension of dividends upon the stock investments in foreign subsidiary companies. Its assets are much reduced in value, as are those of other steamship interests, but the company's position in 1933 was less unfavorable than it would have been without the financial adjustment that was made by the stockholders in June, 1929, when, in place of 498,718 shares of common and 517,280 shares of preferred stock of a par value of \$100 were substituted 600,000 shares of no par value.

Although the International Mercantile Marine Company has not been prosperous except during the World War, and for the years 1927 to 1930 inclusive, the total tonnage of its component fleets increased up to 1915 when the gross tonnage was 1,201,000. In 1921, the several fleets contained 105 vessels—10 American, 93 British and two Belgian—having a total gross tonnage of 1,026,885. At the end of 1923 there were 110 ships with a total tonnage of 1,171,055. During the next three years, the selling and scrapping of ships brought the tonnage down somewhat. These reductions, however, were small as compared with that caused by the sale in 1926 of the capital stock of the Oceanic Steam Navigation Company, the owner of the White Star Line,

to the Royal Mail Steam Packet Company. This transaction and the disposal of a few other vessels decreased the tonnage of the International Mercantile Marine Company from over 1,000,000 tons gross in 1926 to less than half that amount in 1927—to 51 ships and 459,604 tons. By the end of 1932, this shipping and tonnage total had been further reduced to 42 vessels of 394,004 tons gross. The connection of the International Mercantile Marine Company with the White Star Line was not altogether broken inasmuch as the Marine Company continued to act as American agent of its former subsidiary until June 30, 1934, the Royal Mail having meanwhile sold the White Star Line to the Cunard Company.

In January, 1931, the Roosevelt Steamship Company was brought into the International Mercantile Marine combination, the purchase price being 25,000 shares of the stock of the Marine Company. In the following December "in conjunction with the Roosevelt Steamship Company, negotiations were concluded for the acquisition of an important interest in the capital stock of the United States Lines Company which company, formed under the laws of the State of Nevada, had taken over the steamships and other property previously owned by the United States Lines, Inc., comprising the steamships operated as the United States Lines, including the *Leviathan*, the largest, fastest and finest steamer under the American flag, and also the steamers of the American Merchant Line." The United States Lines Company is owned jointly by the International Mercantile Marine and the Dollar-Dawson interests which have a strong position in American shipping interests at the ports of the west coast of the United States. The tonnage of the United States Lines and the American Merchant Line totaled 177,518 tons gross. This alliance of the two leading American steamship interests has been helpful. The position of American shipping in the overseas services has been strengthened, and the intercoastal lines have been able to carry their excellent services to a still higher level.

Those who organized and developed the International Mercantile Marine Company brought together companies operating

⁷ The Report of the International Mercantile Marine Company for the year ending December 31, 1931. The operation of the *Leviathan* has been found to be unprofitable, and it is not in service.

ships, mostly of foreign registry, in transatlantic services. It was the hope of the Marine Company's management that it might engage increasingly in the operation of American flag-ships, accordingly upon the opening of the Panama Canal, it established the Panama Pacific Line and developed a high grade passenger and freight service between New York and the United States Pacific coast ports, with a call en route at Havana. This service has been maintained and improved and is now performed by large, finely appointed electro-drive vessels.

The sale of the White Star Line largely reduced the foreign flag tonnage of the International Mercantile Marine Company and temporarily strengthened its financial condition. In 1924, seven of the British flag vessels of the Leyland Line were sold, which further reduced the foreign flag tonnage. When this sale was announced, Mr. Franklin stated that "We plan to dispose of the remainder of the Leyland Line fleet and the few other foreign ships that we have on our hands just as soon as we can possibly do so." During 1934, the International Mercantile Marine Company and the Munson Steamship Line were working upon a plan involving the sale of a majority of the Munson Line's common stock to the International Mercantile Marine upon the consummation of a financial reorganization of the Munson Steamship Line. The vessels owned by the Munson Line and its subsidiaries in 1934 had a total gross register tonnage of 249,280. These vessels and those chartered comprise a fleet of 80 vessels operated in the West Indian and South American service.^a The attempted merger was not consummated.

The experience of American shipping does not indicate the early establishment of extensive combinations under the American flag in the foreign trade. Although probably over-capitalized at the beginning, the International Mercantile Marine Company has apparently been well managed. It has sought during the past decade to build up its tonnage under the American flag. Its investments in foreign subsidiaries (where its rôle has been that of a holding company) have, on the whole, yielded small returns. Like many other shipping companies, the International Mercantile Marine and its subsidiaries are struggling as best they can to live through the lean years of a world-wide business depres-

^a *Moody's Manual on Industrials*, 1934.

sion In 1934, the company seemed to be making real headway in bringing under its control a large tonnage of American vessels, but what its ultimate success will be remains to be seen

There can be little doubt, however, that there will ultimately be a grouping or consolidation, based upon territory served, or upon differentiation in services, that will bring American ocean carriers under the control of a limited number of managements It has been the policy of the United States Shipping Board, in disposing of government owned ships, to sell them to companies already operating services and thus to build up existing lines instead of adding to the number of competitors Similarly the Shipping Board has brought under one management four lines that were operating vessels for the Shipping Board from the gulf ports of the United States to the Orient, to the United Kingdom, to French Atlantic ports, Belgium, Holland and Germany, and to the Mediterranean Presumably this policy of favoring the consolidation of American ocean carriers will be continued by the United States Government

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CHAPTER VIII

OCEAN SERVICES AND TRAFFIC AGENCIES

OCEAN carriers are of two general categories, those that are engaged in operating vessels in the overseas services, or foreign trade, and those that are engaged in coastwise and intercoastal commerce. The coastwise and intercoastal trade of the United States is open only to American flag vessels, and vessels enrolled for that trade cannot engage in foreign commerce unless they change their documentation from enrollment to the more formal and detailed one of registry. American vessels registered for the foreign trade may also engage in the domestic trade. Preceding chapters have described the kinds of vessels used on the ocean, on the Great Lakes, and on rivers and canals. A descriptive account has also been given of ocean routes, canals and terminal facilities, and of the facilities employed in performing transportation services on the lakes, rivers, and canals. In this and the following chapter, the several services performed by ocean and inland waterway carriers will be described, and an introductory, general account will be given of the several agencies and instrumentalities that assist the carriers in obtaining traffic and in carrying on their activities. The several agencies will be discussed in detail in later chapters.

Vessels are like houses in that vessels may be used by their owners, or the owners may lease or "charter" the vessels to others for use. Likewise an owner may lease a house furnished or a vessel equipped for use, moreover the owner of a house or a building may, in leasing property, provide the tenant or tenants with a complete service, and an owner may operate the vessel that he places at the service of the lessee or charterer who receives from the owners a complete transportation service. Houses and vessels may be leased for a single occasion or service or for a fixed period of time that may be short or long, as the lessee may desire.

The owners or charterers of vessels use them in one or another of three kinds of service (a) the chartered, or, as it is popularly called, the tramp service, (b) the service performed by vessels operated in regular lines between definite termini and usually on fixed schedules of sailings, and (c) the service of transporting the commodity or goods produced or distributed by the company or industry that uses its own vessels. Each of these services—the chartered, the line, and the industrial carrier services—has several species, the characteristics of which will be more fully presented in discussing the several phases of the business of transportation by water. Vessels may pass from one to another class of service, but the three general types are distinct, and it will add significance to the more detailed discussion that is to follow to have clearly in mind each class of service and what is included therein.

CHARTERED OR TRAMP SERVICES

The chartered service is distinctive in that it is not limited to fixed routes. Tramp vessels, as they are called, may be chartered to transport cargoes of any kind not requiring vessels of special design over any route and to any destination not prohibited by physical conditions or legal restrictions. They are usually chartered to carry shipload lots of commodities, such as coal, ore, nitrates, grain, lumber, sugar, building materials, steel, chalk, etc., but they may also be placed "on the berth" for smaller shipments of general cargo. The basic document governing the transportation service is the charter, many forms of which have been adopted both for vessels that are chartered for a single defined voyage and for those chartered for a stated period of time. The several kinds of charters are defined and discussed in Chapter XII which also contains an account of ship brokerage.

Large tramp operators usually give much attention to careful planning of voyages for fleets of tramps, but the primary agencies through which most chartering arrangements are made are the many ship brokers located at the principal ocean ports everywhere throughout the commercial world. Tramp operators do not need to provide themselves with permanent port facilities, nor need they maintain expensive traffic offices and freight

soliciting agencies, and they usually need not conduct extensive advertising campaigns

The vessels engaged in the tramp service are cargo freighters built for economy of operation rather than for speed, and for carrying maximum quantities of ordinary traffic of the kinds that move in shipload lots rather than high class general merchandise or commodities requiring vessels of specialized design. Most of them are slow vessels of moderate tonnage. Ordinary tramp steamers have a tonnage varying from 2,000 to 5,000 and sometimes to 10,000 tons gross, a speed varying from 8 to 11 knots, and a length rarely exceeding 300 to 400 feet. Such a vessel serves the purpose of most shippers seeking cheap transportation for large consignments, and such vessels are not prevented by excessive size or draft from picking up and delivering cargo at a wide range of ocean ports. There are, of course, tramp vessels that do not come within the usual range of speed and tonnage, the tendency is to increase their speed somewhat.

LINE SERVICES

The regular line service is performed by vessels that are operated over definite routes between fixed ports and on announced schedules. Some lines carry freight exclusively, while others carry a varying proportion of freight and passengers. They carry most of the world's oversea general cargo, passenger, mail, and express traffic. But they also compete with the tramps for bulky commodities or heavy traffic of regular volume, and they sometimes supplement their regular cargoes by placing a vessel "on the berth" for part cargoes of commodities, such as grain or case oil, which they may be willing to carry at low rates to avoid the necessity of carrying ballast. The tonnage of ocean shipping operated in line services greatly exceeds the volume of shipping in the chartered services. This has been the natural result of the increasing regularity of the flow of international trade and the development of shipping facilities to meet transportation needs.

The vessels used in the line service range everywhere from ordinary freighters, which do not differ from the better types of tramps, to large cargo vessels especially built for the line-freight service, and to the great passenger-carrying vessels that

frequent the North Atlantic route. They differ from the tramps in that they usually are larger, faster, and more expensively equipped. While the tramp service is rendered both by sailing vessels and by self-propelled vessels, practically all the line vessels on the high seas are at present equipped with engines. The day of the sailing vessel is near its sunset, it is becoming the theme of romance.

The number of vessels in a line, and the frequency of sailings are determined by the volume of business. Whether a company has the same number of ships in commission at all times will depend upon the seasonal or periodical fluctuations in traffic. The company operating a freight line sometimes owns vessels enough to handle only the business of the periods of lighter traffic, and charters such additional ships as may be needed from time to time.

The vessels operated in the regular line service may be grouped as follows:

- 1 Mail and passenger steamships or "express liners," which have but a relatively small cargo space, and carry mainly passengers, mail, express goods, and high-class freight.

- 2 Passenger and cargo steamships or "combination liners," which have a relatively larger cargo space and carry, in addition to the passengers, mail, express goods and high class freight, bulky freight, such as grain, cotton, iron and steel goods and foodstuffs. The distinction between these two types of vessels is not always clear, but the two together comprise the world's deep-sea passenger-carrying vessels, and, as compared with other vessels on a given route, are known by their speed, size, beauty, luxurious equipment and by the regularity with which they operate on fixed routes and schedules.

- 3 Fast cargo steamships, or "cargo liners," are vessels which carry cargo exclusively, but nevertheless operate over definite routes on fixed schedules. They are adapted to the carriage of the many different kinds of freight which move over their routes in less-than-shipload lots. Such vessels are frequently constructed for the particular trade in which they engage, and include many of the world's best-built, fastest, and most efficiently operated freighters. The speed of cargo liners has increased during recent years, as the marine engine has become more efficient,

and as the factor of time has become of more importance in trade and distribution

SERVICES OF INDUSTRIAL CARRIERS

Both tramp and regular line ocean vessels differ from privately operated or industrial vessels in that they are operated as common carriers. Industrial carriers are primarily engaged in the carriage of freight for the industrial or mercantile concerns which operate them. The difference between them and tramps or liners cannot in some cases be easily distinguished, because vessels operated as industrial carriers frequently transport cargoes for others as well as for the companies which operate them. Even such vessels, however, are primarily engaged in a private service, and act as common carriers only to fill surplus space or to obtain return cargoes. Many vessels engaged in this service are special types of ships constructed to transport some particular commodity, such as coal, ore, lumber, fruit, asphalt, or petroleum.

The many tankers operated by each of the several oil companies are an essential facility. The crude petroleum from Mexican and Texas fields is brought in large tank vessels to refineries on the Delaware and on New York Bay. These vessels provide the transportation by sea that the pipe lines provide by land and are a part of the plant by which the product and by-products are prepared for and put upon the market. The major share of the large tonnage that moves down the Great Lakes is the iron ore from the mines about Lake Superior which ore is transported in the specially designed vessels that are shuttled between terminals with almost clock-like precision.

The United States Steel Corporation also has a large fleet of cargo carriers on the ocean for the transportation of its manufactures to the markets of the world. The Steel Corporation also uses its fleet to carry the freight of other shippers. General cargo may be sought to supplement the lading of heavy steel products that occupy but small space in comparison with their weight. Moreover, when an outbound cargo of steel manufactures has been discharged at destination, it is especially desirable that return cargo be obtained in order that the vessel may avoid incurring the expense of a long voyage in ballast.

Such an industrial carrier as the United Fruit Line is also a regular common carrier line. The Fruit Company has its plantations in the West Indies and Central America, and to get its bananas and other fruit to the markets reached via the Gulf and North Atlantic ports of the United States, it requires the regular service of vessels especially designed for carrying fruit. Such vessels can also carry some general cargo and can be provided with accommodations for passengers. Hence, the fleet of the United Fruit Company, while primarily an industrial carrier, is also a regular common carrier line. Similarly, a company that operates a distinctly common carrier line, such as the Grace Line running between New York and the west coast of South America, may become more than a carrier and may increase the traffic handled by establishing trade channels for the buying and selling of commodities and thus acts as a merchant or a commission merchant.

GENERAL BUSINESS ORGANIZATION OF STEAMSHIP LINES

Ocean steamship lines differ from tramps in that they own much property in addition to their vessels. They frequently own water frontage and docks and wharves at the ports served by them, warehouses and sheds, tugs, lighters and other harbor craft, freight-handling appliances, and they may even provide themselves with coaling stations, although they usually depend upon outside concerns for their fuel supply. The lines that do not own the necessary port facilities are obliged to make definite arrangements. They frequently lease docks and wharves on time contracts.

Lines also differ from tramps in that they require an elaborate business organization. Like railroads, they advertise their services and establish agencies at many points to develop passenger traffic, they send out soliciting agents and have agencies to increase their freight business. Some lines turn the work of development of traffic over to steamship agents, and at times the entire operation of a line is conducted by such concerns. Steamship agencies in many instances are large concerns, they may even undertake the establishment of lines on their own account. A large New York steamship agency, for example, handles the American freight business, in whole or in part, of a

number of steamship lines operating to different parts of the world

Large ocean line companies have a business organization as complete as that of a large American railroad. Such an organization will include the usual corporation officers, a president, who is the chief executive, and several vice-presidents acting either as general executives in charge of financial or other corporate affairs or as the executive heads of specific departments. There is a secretary in charge of corporate correspondence, and security transfers and other corporate matters are assigned to him. The general solicitor has charge of the law department, the treasurer of the treasury department, the comptroller or general auditor of the accounting department, the purchasing agent or supervising purchasing agent of the purchasing department. Any of these departments may, however, be supervised directly by a vice-president. There may also be a separate insurance department.

Traffic work, such as the development of traffic, quoting of freight rates and fares, and the issue and distribution of tariffs and tickets, is handled by the traffic department. Ordinarily it is supervised by a traffic manager, and if the line transports both freight and passengers there will be two of those traffic managers, one in charge of the freight and the other in charge of the passenger department. More detailed accounts of these traffic departments are given in Chapters X and XIV.

The operating department is the largest department in the business organization of a steamship line. Its varied duties are performed by subdepartments each having charge of important activities. The wharf department, which has charge of the receipt of cargo from shippers or their agents, the loading of cargo into vessels, the discharging of cargoes from vessels, the delivery of cargoes to consignees and the handling and care of cargo on wharves or piers, is discussed in Chapter XV. The marine department has charge of the employment of officers and deck crews, the study of ship performance, the sending of orders to vessels, the arrangement of vessel inspections, the safeguarding of vessels as to their seaworthiness, providing for fuel bunkering and ships stores, the examination and approval of repair bills and the supervision of repairs, the preparation of the

crew list and shipping articles and other operating functions discussed more fully in Chapter XV. At sea the marine department includes the non-engineering personnel aboard ship: the master and deck officers, cadets, wireless operators and seamen who together constitute the so-called deck department and also the pursers, surgeons and their assistants.

The engineer department passes upon extensive repairs of marine engines and supervises them as they progress either in subsidiary or outside shops, approves requisitions, makes or approves appointments of the chief engineers and assistant engineers aboard vessels, examines marine engines and arranges for inspections, arranges for the employment of engine-room crews, and generally supervises the performance and maintenance of the engines in port and at sea. Voyage reports and abstracts of various kinds are received from the engineers of each vessel. Afloat, the personnel of the department includes the steamship company's chief engineers, assistant engineers, engine-room forces and unlicensed deck engineers.

The victualing or steward department, which is highly important in the passenger service, is also a subdivision of the operating department, and the operating department may include a construction department and a chartering department. The operating department as a whole, in the case of large lines, is usually coordinated and supervised by a manager of operations. Under this arrangement, the general wharf superintendent, marine superintendent, superintendent engineer or port engineer, victualing superintendent or port steward and the heads of such other subdivisions of the operating department as are maintained by some ocean steamship lines report directly to the manager of operations. The operating department as a whole is discussed more fully in Chapter XV.

Effective business organizations or arrangements at a steamship company's main port and at outports and interior cities within the United States are obviously essential to its successful management, but experience has repeatedly shown that a line must also have effective representation abroad. Traffic and operating functions that arise at the more important foreign ports which the line serves cannot be left entirely to the ship's officers. Every line, therefore, is represented abroad either by general or

specific foreign steamship agencies or by branch offices which it itself establishes. It is important at foreign ports to expedite the turn-around of the vessel, to examine requests for supplies and fuel, make surveys, adjust legal difficulties, check up on the efficiency of the ship's personnel and fill vacancies in the crew, obtain and handle return cargoes, make effective wharf arrangements and perform many of the same traffic and operating duties that are performed at home ports.

AUXILIARY OCEAN TRAFFIC AGENCIES

In addition to their own traffic departments, companies engaged in ocean transportation coastwise or overseas have the assistance and cooperation of companies that carry on foreign trade or domestic commerce and of commercial organizations and maritime associations and exchanges by means of which business men having like interests cooperate to facilitate and promote both national and international trade. As has been stated, the ship broker serves both the shipper who seeks transportation for bulk cargo of vessel-load quantity and also the ship-owner who has vessels that he desires to have put into service. The freight forwarder also aids both shippers and carriers.

The large producer and shipper may have his own traffic department headed by a traffic manager who makes arrangements with carriers for the transportation of products to market and for bringing from a distance the supplies and materials required in production. The great majority of producers and shippers do not have industries large enough to warrant their having their own traffic departments. They are served by the freight forwarder at the seaports who secures transportation for the goods of the many shippers he serves, and who attends to all the details of shipment, billing and insurance of the freight assigned to him. He serves both the shippers of outbound freight and those interested in inbound goods. The freight forwarder is in close telephonic communication with vessel operators seeking cargo, and he may arrange with a steamship line to take shipments at regular rates or he may be able to get competing companies to bid against each other for freight, if the amount of the shipment is large. The freight forwarder may also arrange for the transportation of his shipment as "berth cargo," it

being the practice both of the operators of regular freight lines and of operators of tramp vessels to put a ship "on the berth" for the purpose of selling space, more often for supplemental cargo, but sometimes, in the case of chartered vessels, for cargo to comprise the entire lading of a vessel. When business is active and cargoes are readily obtained an individual or a regular brokerage house may speculate by chartering a vessel and putting it on the berth with the expectation of securing cargo that will bring in profitable freight receipts. The operators of vessels in line service seek berth cargo eagerly when traffic is light, and there is difficulty in securing sufficient freight for the ships operated.

Boards of trade, maritime exchanges and other similar organizations of business men are of great assistance to carriers engaged in overseas and coastwise transportation. At numerous American ports, and the same is true of ports in other countries, maritime exchanges or similar organizations have been organized by shippers and carriers interested in ocean commerce. Such an organization seeks to promote generally the commerce of its port and it performs, or may perform, several specific functions, such as the collection of shipping statistics, keeping records of the entry and clearance of vessels, establishing a reporting station with a wireless service, collecting and publishing current shipping news, keeping charter books or a record of charter parties, standardizing charter party provisions, arbitrating shipping disputes and establishing for the port local rules governing vessel demurrage, loading and discharging of freight, and the receipt and delivery of special kinds of freight.

While activities of the kind just enumerated are the special functions of maritime exchanges, they may be exercised by a board of trade, a chamber of commerce or a commercial exchange. In the supervision and development of commerce, and thus in the creation of traffic, the commercial and the grain or produce exchanges render a service especially helpful to ocean carriers. Such exchanges include in their membership produce and grain traders and shippers and also ship brokers, freight forwarders, steamship agents, and insurance brokers. Upon the floor of these exchanges, grain charter rates are quoted, vessels may be chartered, vessel space for berth cargo may be engaged and marine

insurance may be secured In a word, the exchange, as its name implies, is the meeting place of the shipper, the carrier or the vessel owner, and those agents who serve both of them Such an exchange may be designated the bourse, although that name is more exactly applied to the building or place in a large port or commercial city where men engaged in many kinds of business regularly assemble in groups, each group being composed of those interested in a particular kind of production or trade

EVOLUTION IN OCEAN SERVICES SUMMARIZED

The evolution of the ocean transportation services during the past century, as presented in this and the preceding chapter, may be summarized with reference to American trade as follows During the early decades of the last century, the volume of foreign trade became large enough to cause individuals, and companies who were not merchants or traders, to engage largely in the carrying trade The ocean transportation service became a distinct business Two kinds of common carriers then came to be differentiated on the ocean lines and chartered vessels, or tramps The introduction of steam followed, and the traffic handled by line vessels was able to expand with great rapidity In course of time, approximately by 1870, the technical improvement of the main engine and the growth in the size of ocean vessels so reduced the cost of moving bulky traffic by steam power as to make the tramp steamer an economical carrier of cargo freight Charter traffic could be handled both by steamers and sailing vessels, it increased rapidly in volume, and has for the most part passed from the sailing vessel to the steamer With the development of production for a world-wide market, it became profitable for industrial concerns, having bulk freight to transport, to provide themselves with an ocean service while they also acted as common carriers for the public to secure traffic to fill surplus vessel space and to obtain return cargoes to reduce operating costs Lastly, with the growth in volume and regularity of commerce, line steamers have taken over a large share of the traffic that was formerly handled by chartered vessels This has been made possible, not only by the growing volume and regularity of international exchanges, but also by the ability of the line steamers to take freight at lower rates than were

formerly possible, and by the increasing value of doing business rapidly. Electric communication between all parts of the world and improved international banking facilities are causing international trade to be handled more and more expeditiously. Time is money to an increasing extent even in the bulky traffic of ocean commerce.

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CHAPTER IX

SERVICES AND AGENCIES OF TRANSPORTATION ON RIVERS, CANALS, AND THE GREAT LAKES

INLAND water transportation service differs considerably from the services of the railroads and ocean carriers. The railroads and ocean shipping companies carry mail, express, freight and passengers, while the companies operating upon the rivers, lakes and canals are concerned almost entirely with the carriage of freight. Mail, express matter, and merchandise generally require more rapid movement than is possible upon inland waterways and comparatively few passengers patronize them because of the superior service available on the railroads and highways. Another obvious difference arises from the character of the freight traffic moving by water in inland commerce. Until recently the water-borne tonnage in inland commerce included very few manufactured articles. As shown in Chapter VI, products of the mines and forests predominate to the virtual exclusion of package freight of higher value and classification. The revival of interest in river development and the recent inauguration of additional services on the Mississippi and tributaries have somewhat altered the situation, but the preponderance of bulk freight continues to distinguish carriage by water in domestic commerce upon the rivers, Great Lakes and canals. Considerably more merchandise freight and passenger traffic is carried on the Great Lakes than upon inland rivers, but as a percentage of total traffic it corresponds closely to that of the rivers.

TYPES OF FREIGHT SERVICES

The types of freight services on the inland waterways resemble those offered by ocean carriers despite traffic differences. Common carriers comprise that group of companies offering regularly scheduled services to the public for the transportation

of freight or passengers. In domestic commerce, publication of tariffs by common carrier lines usually is the rule as contrasted with the custom in ocean shipping. In order to establish this type of service traffic development must have progressed to such an extent that tonnage is regularly offered for carriage between major ports, as tonnage increases, the services of the common carriers are extended to keep pace until eventually regular schedules are maintained between ports of major importance. The organization of line companies usually involves the creation and maintenance of floating equipment of a superior nature as well as warehouses, wharves, docks and other port facilities, in addition it is necessary to maintain traffic and office forces ashore for soliciting freight and administering other non-operating activities of the company.

On inland waterways the contract carrier resembles the tramp or chartered service of ocean transportation. Maintaining no regular service and rarely publishing tariffs the contract carrier does not offer services to the general shipping public, preferring to deal individually with shippers for the carriage of particular products as contrasted with the general cargo service of the common carrier. Usually less capital is involved in the contract carriers' organizations because neither a large personnel ashore nor extensive port investment is required. Operating costs are thus reduced to a minimum which permits rate levels below those of the line companies as an offset to the advantages of the regular schedules and superior equipment available to patrons of the lines.

The superiority of the line service in ocean shipping is more pronounced than upon rivers, canals and, to some extent, the Great Lakes, for the following reasons: (1) the speed of inland services is frequently limited by physical characteristics of the waterway, in this way the advantage maintained by costly, modern liners over the slower tramp vessel is largely nullified, (2) there is less opportunity for the line companies to acquire higher grade commodities paying higher rates because such traffic constitutes a small part of the available inland waterway tonnage, (3) the comparatively small investment necessary to establish a service upon rivers and canals permits a large number of contract carriers to participate to the disadvantage of the lines,

(4) the absence of foreign competition, while reacting to the advantage of both types, simplifies the operation of the contract services to a greater extent

The increase in the number of private or industrial carriers is due to the many large business enterprises represented by the steel, oil, automobile, sand, and coal companies. Subsidiary carriers organized to transport the products of the parent companies have increased at a rapid rate in recent years, and, because domestic operation presents fewer difficulties and requires a smaller outlay of capital, this type of service exceeds all others in importance and almost equals common carriers in number on the inland waterways. Although concerned principally with special products peculiar to the controlling companies, industrial lines frequently act as common or contract carriers when there is insufficient traffic to assure profitable operation as a purely private carrier. This is especially true when the movement of owned or controlled cargo is largely in one direction. The various private lines are usually established for one or more of the following advantages that may accrue to the operators.¹ In some instances all of the advantages are realized.

1 Equipment of a specialized nature can be designed to meet the particular needs of an industry. Many bulk products are handled most economically in craft differing in construction from the general cargo vessels and barges of the common carriers or tramp operators. The latter are seldom willing or able to provide special equipment which is dependent for profitable operation upon the tonnage of a single shipper when the shipper is free to inaugurate a private service or direct his tonnage to other carriers at any time, the operating limitations of specialized equipment constitute a hazard generally too great for carriers not having an assured flow of traffic. In ocean commerce the owner of specialized equipment is not restricted and may operate over all routes of the world and thus avoid some of the dangers of specialization.

2 The competitive advantages of a frequent and regular service to many large shippers justify the operation of subsidiary transportation companies. The operation of private services by

¹ See E. R. Johnson and G. G. Huebner, *Principles of Ocean Transportation* (1918)

water may prove of value in many industries of sufficient size to warrant their organization

3 Because the rates of common and contract carriers are set at profit-producing levels, it may be possible for industrial lines to perform a similar service for their owners at a saving. These economies, however, are governed by efficiency in operation and more or less continuous flow of owned or controlled traffic. In the event there is an abundance of contract and common carrier vessel tonnage, rates may be depressed to a point at which it would be more costly per ton mile to move products by industrial line vessels than to ship by other vessels.

Excluding the Great Lakes, there were 485 transportation companies plying the rivers, canals, lakes and bays of the United States in 1930.² Of this total, 200 were common carriers, 187 private carriers and 98 contract carriers. With few exceptions the larger companies were classified as private carriers or as common carriers in close affiliation with corporations for whose benefit they were organized. Propelling equipment and barges numbered 1,300 and 4,500 respectively and were valued at \$150,000,000.

TRANSPORTATION SERVICES ON THE OHIO

Ninety-five per cent of the commerce of the Ohio River System is carried by private carriers. This is considerably above the average for all rivers and decidedly higher than on the Great Lakes. Of 18 companies operating 1,552 barges and 101 self-propelling units in 1930, all but three were private carriers, and only one of the three was exclusively a common carrier. The private carriers operated 1,379 barges and 88 self-propelled units. Coal, steel, sand, and gravel constitute all but a small part of the tonnage of the Ohio and these products are carried in barges of the companies producing or marketing them. Several of the larger coal and steel companies had over 100 barges in service and one, the Jones and Laughlin Steel Corporation, operated 213 barges and eight towboats on the Ohio, Monongahela and Mississippi rivers. Of the common carriers, the American Barge Line maintained regular service from Pittsburgh to New Orleans.

²U. S. Department of Commerce, Inland Waterway Freight Transportation Lines, Domestic Commerce Series, No. 32, 1930.

with three to five departures downstream and three upstream per month. Equipment consisted of six towboats and 48 barges designed to carry iron, steel, petroleum, cement and similar products of bulk.

Although packet boats have largely given way to the more efficient towboat and barge method, there remain a few that ply the Ohio between Pittsburgh and Cairo. For many years there has been a steady decline in this once popular method, and it is reasonable to believe that the future will see the packet boat replaced on all inland rivers by the modern towboat and barge.

SERVICES ON THE MISSISSIPPI THE INLAND WATERWAYS CORPORATION

The Mississippi proper supports several barge lines and scores of smaller companies operating from 10 to 30 barges. The most outstanding service is the government owned and operated Inland Waterways Corporation. It is the only example in the United States proper of departure from the principle of private ownership and operation of an important inland waterway transportation facility. The origin of the corporation dates from the unprecedented burden placed upon all facilities of transport during the late war. By proclamation, the President commandeered the railroads in December, 1917. Soon thereafter, the Committee on Inland Waterways of the United States Railroad Administration made recommendations to the Director General of Railroads that resulted in an order by that official taking over all suitable floating equipment on the New York State Barge Canal, and the Mississippi and Warrior rivers. In addition, the government provided new equipment for use on the Chesapeake and Ohio Canal, began operation of the Delaware and Raritan Canal and made a small appropriation for dredging the Illinois and Michigan Canal. Seventeen millions of dollars were made available for the purchase of equipment for operation on the New York Barge Canal and the Mississippi.

By the Transportation Act of 1920, the Division of Inland Waterways of the Railroad Administration became the Inland and Coastwise Waterways Service in the War Department, the Secretary of War was authorized to continue in operation such facilities for carriage by water as might be under Federal con-

trol³ Included under the jurisdiction of the Secretary were services on the Mississippi and Warrior rivers and the attitude of the Congress toward inland waterways was contained in the following instructions⁴

It shall be the duty of the Secretary of War, with the object of promoting, encouraging, and developing inland waterway transportation facilities in connection with the commerce of the United States, to investigate the appropriate types of boats suitable for different classes of such waterways, to investigate the subject of water terminals, both for inland waterway traffic and for through traffic by water and rail, including the necessary docks, warehouses, apparatus, equipment, and appliances in connection therewith, and also railroad spurs and switches connecting with such terminals, with a view to devising the types most appropriate for different locations, and for the more expeditious and economical transfer or interchange of passengers or property between carriers by water and carriers by rail, to advise with communities, cities, and towns regarding the appropriate location of such terminals, and to cooperate with them in the preparation of plans for suitable terminal facilities, to investigate the existing status of water transportation upon the different inland waterways of the country, with a view to determining whether such waterways are being utilized to the extent of their capacity, and to what extent they are meeting the demands of traffic, and whether the water carriers utilizing such railways are interchanging traffic with the railroads, and to investigate any other matter that may tend to promote and encourage inland water transportation

Operation of the lines and equipment remaining from wartime activity of the government continued under the Inland and Coastwise Waterways Service of the War Department until the passage, on June 2, 1924, of an Act creating the Inland Waterways Corporation (Federal Barge Line), with the Secretary of War as president ex officio, the administrative duties were to be delegated to officials chosen by the Secretary⁵ In creating the corporation, the intent was to make provision for government operation of the service until it could be demonstrated to be an attractive investment for private capital In 1928, the scope of activity of the Corporation was extended to include operation of

³ The Act of 1920 restored the railroads and other waterway equipment to private owners

⁴ Act to Regulate Commerce, as amended, Sec 500

⁵ "An Act to create the Inland Waterways Corporation and for other purposes," 43 U S 360

the Barge Line on the upper Mississippi and tributaries, excluding the Ohio. Authority for the extension appears in the Denison Act, approved May 29, 1928, amending the Act of 1924. Other provisions of importance increased the capital stock of the corporation from five to fifteen millions, outlined the policy of the Congress and gave detailed instructions to the Secretary of War and the Interstate Commerce Commission.

Section 2 of the Act of 1924 was amended to authorize extension of the service, as soon as proper improvements were made, to the Mississippi above St. Louis and to tributaries, excluding the Ohio, which, in the opinion of the Secretary of War offered an opportunity for successful operation. It was declared to be the policy of Congress to continue the operation of the Corporation until (1) adequate terminals and channels shall have been completed in the rivers where the Corporation operates, (2) joint tariffs with rail carriers sufficient to make generally available the principles of joint rail and water transportation have been published and filed under the provisions of the Interstate Commerce Act as amended, (3) private persons or companies engage or evince a willingness to engage in common carrier service on such rivers. When these requirements have been met, the Secretary of War is authorized to dispose of the facilities by sale or lease, provided the purchasers or lessees are in no way connected with a carrier by rail, also, assurance must be given that the facilities are to be operated in the common carrier service "in a manner substantially similar to the service rendered by the corporation." For purposes of sale or lease, the Mississippi and Warrior facilities shall be considered as separate units of a value to be determined by the Interstate Commerce Commission, final approval of the disposal of either unit is to be given by the President. The same section permits any person, firm, or corporation engaged, or about to engage in conducting a common carrier service upon the Warrior River, or the Mississippi River, or any tributaries thereof, to apply for and obtain a certificate of public convenience and necessity from the Interstate Commerce Commission in accordance with the provisions of the Interstate Commerce Act.^a When a certificate has been issued, the Commission is directed to order "all connecting common carriers and their

^a Section 1

connections to join with such water carrier in through routes and joint rates—as provided in the Interstate Commerce Act ”⁷ The Commission is further directed to fix minimum differentials between all rail rates and such joint rates and to establish equitable division of joint rates in the event the carriers are unable to agree upon such division

Because of the dependence of a common carrier service, such as that offered by Inland Waterways Corporation, upon the interchange of traffic with the railroads, through routes and joint rates have been most important Tonnage originating at river terminals is insufficient to support extensive operations The corporation has endeavored to bring about rail connections wherever possible as well as to establish through routes, joint rates, and equitable divisions of such rates with the railroads From the period of government operation to the present time, a constant effort has been made by the management of the Barge Line to extend the application of joint rates to all connecting railroads where such extension appeared to be desirable, and to include an increasing number of commodities Considerable difficulty has been encountered in arriving at a formula for the division of the rates The Denison Act provided that the Commission should “require the interested carriers to enter into negotiations for the purpose of establishing equitable divisions of the aforesaid joint differential rates within thirty days after such joint rates are established ” In numerous instances these negotiations have been unsuccessful and it became necessary for the Commission to prescribe, in Ex Parte 96,⁸ a general rule to be followed in the establishment and division of rail-barge, barge-rail and rail-barge-rail routes and rates

As a guiding principle, the Commission states that such routes and rates by the Barge Line and connecting railroads should be demonstrated to be reasonably economical and not too circuitous⁹

As circuitry increases, the value of coordinating the water and rail services decreases until a point is reached beyond which through carriage by rail is a more efficient use of existing transportation facilities That section of the Denison Act which gave

⁷ Section 15

⁸ 153 I C C 129 174 I C C 477 182 I C C 521

⁹ 151 I C C 126 and 144

authority to the Commission to establish joint routes and joint rates without a hearing was declared by the railroads to be in violation of the Fifth Amendment to the Constitution and a delegation of legislative authority. In a decision of March 5, 1934, upholding the constitutionality of the Act, the Supreme Court stated, in effect, that the railroads are entitled to formal hearings upon such orders before they become effective. Thus, the rail carriers, while technically losing the suit (*ICC et al v Ill Cent Rwy et al*) established their right to disprove the wisdom of rate and route orders in hearings before the occurrence of the damage which they believe would result from compliance with the orders. Other decisions of the Commission under the Denison Act granted certificates of public convenience and necessity to the American Barge Line and the Mississippi Valley Barge Line. These two companies are the only additional large common carriers operating on the Mississippi and tributaries. It is now possible for shippers to take advantage of through routes via almost all important river ports, and joint rates apply to all commodities suitable for barge transportation.

OPERATIONS OF THE INLAND WATERWAYS CORPORATION

The Inland Waterways Corporation provides the most extensive common carrier service available on the inland rivers of the United States. It consists of operations on the Lower Mississippi, the Upper Mississippi, the Missouri, and the Warrior rivers.¹⁰ The first is the longest and most important from the point of view of investment and traffic handled. It includes the Lower Mississippi between New Orleans and St. Louis, a distance by river of 1,164 miles. The section of the river from the latter city to St. Paul and Minneapolis, 686 miles, constitutes the Upper Division. The Warrior Division is the shortest, but is second in volume of tonnage. This division reaches Birmingham, Alabama, from New Orleans by making use of Borgne Lake and Canal, Mississippi Sound, Mobile Bay and the Mobile, Tombigbee and Warrior rivers.¹¹

¹⁰ The Chief of Engineers certified that the 8 foot channel to Kansas City would be completed by March 1, 1934 and the Secretary of War directed the Inland Waterways Corporation to make a survey of the route.

¹¹ Connection with the Southern Railway is made by the Warrior River Terminal Co., owned by the Inland Waterways Corporation, and operating between Ensley and Birmingham, a distance of 22 miles.

Operation on the Missouri River Division from St. Louis to Kansas City was begun in 1935

In the development of equipment suitable for use on inland

EQUIPMENT IN SERVICE, DECEMBER 31, 1934¹²

	Upper	Lower	Warrior	Total
Towboats	5	15	4	24
Tugboats	1	1	0	2
Self propelled barges	0	3	1	4
Cargo barges	54	150	52	256
Miscellaneous	6	39	7	52
TOTAL	66	208	64	338

waterways the Barge Line has been able to make progress by virtue of ample funds and the efforts of government experts. Barges and towboats modern in design and performance have been constructed by the government as evidence of the attention

TRAFFIC CARRIED BY THE INLAND WATERWAYS CORPORATION¹³

Year	Upper Mississippi Division	Lower Mississippi Division	Warrior Division	Total
1924		849,503	222,345	1,071,848
1925		910,755	231,464	1,142,219
1926	978	1,044,049	296,929	1,342,556
1927	14,061	1,237,452	398,694	1,650,207
1928	119,648	1,435,560	317,389	1,872,597
1929	105,950	1,292,876	254,555	1,653,381
1930	105,494	1,149,864	235,266	1,490,624
1931	79,726	1,170,317	283,872	1,533,915
1932	104,185	1,292,983	255,920	1,653,088
1933	144,585	1,206,302	254,943	1,605,844
1934	148,068	1,127,342	208,449	1,483,859

given to the development of an economical means of carriage on the rivers. The number of units of all types, greatly exceeding the total operated by any other common carrier on the Mississippi

¹² Annual Report of Inland Waterways Corporation (1934)

¹³ Annual Reports of Inland Waterways Corporation

and Ohio, is indicative of the important place occupied by this experimental government enterprise

When allowance is made for the movement of products in bulk such as iron and steel, coal, sand and gravel, the tonnage of the Barge Line accounts for a large percentage of the higher grade manufactured articles carried on the Mississippi proper

It is hoped that the increase in the number of rail-water rates will make shipment by water attractive to shippers located at a distance from the river. The extent to which the Barge Line and other common carriers will be successful in their efforts cannot be estimated until more time has elapsed. The abnormal economic conditions prevailing during recent years have made difficult any evaluation of the benefits of numerous through routes and joint rates established since 1924. On all three divisions the north-bound movement exceeds the southbound largely because sugar is carried in large quantities from New Orleans to up-river points on the Mississippi and to inland distributing centers by way of the Warrior division. Sulphur, coffee, burlap, sisal and rice are other products carried in large amounts and these are supplemented by scores of articles of higher grade ordinarily requiring the special packing and handling usually accorded merchandise freight. Southbound, cotton, wheat, steel, and canned goods are outstanding in volume but tonnage in this direction likewise includes a multitude of manufactured products generally classified as package freight due to their value and shipping characteristics.

A steady increase in the diversity of shipments has been gratifying to those in charge of the operation of the Barge Line. Charged with the administration of government activities until such time as these services may be disposed of under the provisions of the Denison Act, the officers of the Inland Waterways Corporation hope to demonstrate the feasibility of private operation of waterway services on the Mississippi and other rivers by extending the activities of the corporation as channels are provided and by showing operating profits sufficient to interest private capital in similar enterprises. Although the inauguration in recent years of additional services both of an industrial and common carrier nature indicates progress, it cannot be said that the efforts of the government have shown profit. The Warrior and

Upper Mississippi divisions have shown operating losses which, at times, exceeded the operating profits of the Lower Mississippi division, and if the corporation were required to pay interest upon capital advanced by the government the entire venture could be said to have been a losing one financially. There are, however, certain benefits resulting from the experiment. Proponents of further development of inland waterways argue that it has offered lower rates to many favorably located shippers and, as the number of joint rates with connecting railways increased, the rate advantages were extended to include the entire Mississippi Valley and in many instances more distant parts of the nation. Although popular opinion is probably opposed to government invasion of any field of business, the operation of the Barge Line has received the approval of those sections directly benefited by the lower charges in effect upon the various divisions of the Line. Railroads continue to oppose government operation.

Under a resolution adopted by the House of Representatives in May, 1932, a special committee was appointed to investigate government competition with private enterprise.¹⁴ The report of the committee, submitted in February, 1933, included a recommendation that the services of the Barge Line be discontinued and liquidated by sale or long-time lease to private enterprise at an early date. In arriving at this conclusion, the committee found that the Barge Line pays neither interest upon funds advanced by the government nor property taxes other than those levied upon the property of the terminal railroad between Ensley and Birmingham. Hearings, at which testimony for and against the services was taken, established the fact, in the opinion of the committee, that "transportation of materials by barges of the Inland Waterways Corporation is not cheap transportation." In arriving at this conclusion the committee said:

When a shipper ships by railroad, the rate which is charged by the railroad is the total charge for the transportation of material. With the sums received, the railroad maintains its roadway, pays taxes and is entitled to earn a return on its investment in addition to paying the other costs incident to the transportation of the materials. The Federal Barge Line, on the other hand, pays nothing for taxes except the taxes on its railroad property, makes no attempt to earn a return on its invest-

ment and pays nothing for the use of the stream or to reimburse the government for its expenditures for construction and maintenance. That part of the transportation cost represented by the maintenance of roadway, interest on investment and taxes which is paid by the shipper when he ships by rail is borne by the taxpayer when the materials move by Federal Barge Line, and this burden which is borne by the taxpayer is much greater than the difference between the railroad freight rate and the Barge Line freight rate.

Commenting upon the small number of river terminals owned by the line, the report pointed to the construction of terminals by municipalities and subsequently leased to the line as an additional burden upon the taxpayers of those cities. In most instances, income derived from the terminals has been insufficient to meet the carrying charges, and the taxpayers of many municipalities have been compelled to meet the deficits.

In the same month, the National Transportation Committee¹⁵ concluded a study containing similar criticisms of inland waterways, setting forth the principle that inland waterways should bear all costs of amortization, interest, maintenance and operation of the facilities for their navigation. If they cannot bear such charges and compete with other forms of transport, they should be abandoned. It was recommended that the proposed St. Lawrence Waterway be tested by this principle, and that the continued operation of actual facilities, such as the Barge Line, should not be approved.¹⁶ It is unfortunate that disposition of the Barge Line, as provided for in the Denison Act, has not been possible thus far. The service has been beneficial locally, but if the conclusions contained in these reports are well founded, it would seem advisable for the government to withdraw as soon as possible. It will be difficult to determine the true place of transportation on the Mississippi unless such services by water are on a competitive basis with other agencies of transportation. The inland waterway policy of the government will be discussed in Chapter XXXIII.

¹⁵ The committee appointed by certain banking, insurance, and educational institutions to investigate the transportation problem, consisted of Calvin Coolidge, Alfred E. Smith, Bernard M. Baruch, Alexander Legge and Clark Howell.

¹⁶ See Chap. vi.

SERVICES ON THE NEW YORK STATE BARGE CANAL

For the most part, those companies operating between the eastern seaboard and the Great Lakes through the Barge Canal are considered to be contract carriers. The Federal Government exercises no great measure of control over port-to-port rates by water, but the provisions of the Act to Regulate Commerce "apply to common carriers that are engaged in the transportation of passengers or property wholly by railroad, or partly by rail road and partly by water, when both are used under a common control, management, or arrangement for a continuous carriage or shipment."¹⁷ Vessel operators who prefer not to establish through rail-water routes and rates are able to exempt themselves from the jurisdiction of the Interstate Commerce Commission. The absence of rail-water rates in which users of the Barge Canal participate indicates a desire on the part of many of these carriers to be free from those provisions of the Act applicable to traffic subject to federal regulation. However, the large number of ports along the Canal and the shores of the Great Lakes make joint rail-water rates less imperative for canal operators than for companies operating on the Mississippi system because these ports constitute a consuming market for a great part of the commodities passing through the Canal.

Many companies offer both common and contract services largely because of an unusual situation existing in the grain trade. The shippers of grain, usually members of the New York Produce Exchange, have been unwilling to patronize vessel operators who claim the limitation of liability provided for in the Harter Act.¹⁸ Lower cargo insurance premiums are paid upon commodities carried in vessels not claiming the exemptions from liability contained in this Act and as a consequence eastbound grain and similar bulk cargoes are carried under contracts or charter parties that place greater responsibility upon the carriers and increase the insurance rates paid by them. Considerable package freight is shipped westbound from the north Atlantic

¹⁷ Act to Regulate Commerce 1887, as amended, Section 1a. See Chap xxviii

¹⁸ The Harter Act of 1893, provides, in general, that carriers by water are liable only for (1) negligence in stowing or caring for cargo in their custody, (2) failure to properly man and equip the vessels, (3) failure to make the vessel seaworthy

area, particularly from the vicinity of New York City, and in accepting such shipments the operators act as common carriers and assume full liability to the extent of providing insurance coverage. In this manner their westbound services approximate those of the railways which assume the extensive liability provided for in the domestic railroad bill of lading.

During 1934, 43 companies or individuals operated contract or common-carrier services over the canal system, equipment consisted of over 550 barges with capacities ranging between 250 and 2,400 tons, approximately 120 steam and diesel tugs, and more than 40 self-propelled cargo ships with capacities up to 3,000 tons.¹⁹ The majority of the eastern termini of the lines are in the New York Harbor district where piers, handling equipment, and storage facilities are maintained, but through service is sometimes offered between ports on the Lakes and Atlantic coast ports south to Norfolk and north to Boston. Although a number of the above companies operate scheduled services to Erie, Cleveland, Toledo and Detroit without transshipment, the majority provide through services as far as Buffalo where the lading is transferred to lake vessels, at the terminals of the lake carriers, for delivery by them to lake ports farther west. Bulk cargo service was maintained by two companies between New York City and Quebec, Montreal, Ottawa and intermediate points, including those on Lake Champlain and the Champlain Division of the canal system. The most extensive Canal-Great Lakes service was available by the Seaboard-Great Lakes Corporation in connection with the Great Lakes Transit Corporation, the former operating between New York City and Buffalo and the latter upon the Lakes. Canal-Lake, Canal-Lake-rail rates, and import class and commodity rates upon carloads have been sanctioned by the United States Shipping Board Bureau and the Interstate Commerce Commission to apply by these lines between New York and points in Illinois, Indiana, Iowa, Michigan, Minnesota, Wisconsin and Missouri.²⁰ While shipments are in transit in ships or barges of either of the participating carriers by water, the liability assumed is in direct contrast to that accepted by

¹⁹ General Circular No. 80, Department of Public Works, Division of Canals and Waterways, State of New York.

²⁰ Seaboard Great Lakes Corporation, Tariff I C, C No. 6.

ocean carriers Marine insurance costs are included in the through rates and responsibility is assumed for those risks generally covered by marine insurance, perils of the seas, rivers, canals, and lakes, fire, collision, stranding and all other misfortune excluding riots, war, or insurrection Delivery to cities in middle western states adjacent to the Lakes is participated in by more than thirty railroads of which many are terminal lines serving various lake ports

In addition to the common and contract services mentioned above, there are a number of private or industrial lines operating regularly through the canal Oil is second in tonnage among commodities carried, and four of the largest domestic oil companies maintain fleets of motor tank vessels for the carriage of refined oils and petroleum products from the seaboard refineries to distributing ports along the canal and the shores of the Lakes In 1931, a 6-inch pipe line with a gasoline capacity of 5,000 barrels per day was completed by one company from Marcus Hook, Pennsylvania, to Syracuse, at the latter city motor tankers load for delivery to consuming centers along the Canal and the eastern lake ports Other private interests operate independent services for the transportation of special cargoes Important in this group are the vessels of the Ford Motor Company that are employed to carry motor parts from Dearborn, Michigan, to eastern assembly plants The new vessels recently placed in service by this company have cargo capacities exceeding 2,000 tons On the return voyage, they compete with the other carriers for west-bound package and miscellaneous freight

SERVICES ON THE GREAT LAKES

Although the total cargo tonnage of the Great Lakes is not greatly in excess of the tonnage carried on the rivers of the United States, a greater average length of haul on the Lakes is indicated by a total ton-mileage four times that of the combined rivers²¹ By this comparison it is possible to appreciate the vast commerce of the Lakes and the extent to which bulk and package freight services have been developed Ore, coal, stone, and grain

²¹ For the calendar year 1933 ton mileage on the Great Lakes was approximately 45 billions, on other inland waterways eight billions—Commercial Statistics of Waterborne Commerce of U S, Annual Report of Chief of Engineers, War Department, 1934

are the most important bulk cargoes. The bulk freighter of present-day design has been created in response to the demand for efficient and economical carriage of these low grade products during an annual navigation season seldom exceeding seven and one-half months. Loading and discharging methods have kept pace with the progress made in vessel design. For many years, ton-mileage transportation costs on the Great Lakes have been the lowest in the world.

There is no marked division of lake carriers into common, contract and industrial groups. Eastbound tonnages of iron ore and grain normally account for about one-half the total. These and other bulk commodities are carried under charter rates or by private lines owned by, or having corporate relationship with, industrial corporations. The greater part of the ore is brought from Duluth-Superior to the major receiving ports, Cleveland, Conneaut, South Chicago, Ashtabula and Gary, in vessels owned or controlled by steel companies. Westbound coal, constituting about 20 per cent of the Lakes tonnage, is likewise carried to consuming and distributing centers adjacent to the upper lake ports in vessels under charter or owned by coal companies in competition with coal brought by rail from Indiana, Illinois and Kentucky fields. Because of the wide ownership of specially designed ore carriers by the steel-companies, competition is keen for westbound coal and other products. Independent vessel operators whose ships carry grain, stone, and ore eastward compete for return cargoes of coal and other articles of bulk with the industrial lines that have been established primarily to engage in the movement of ore from the Duluth-Superior district to the receiving ports named above. There are, however, a number of coal carrying vessels that are owned by the mining companies, in the operation of these ships the eastward voyage is competitive, because owned cargoes of coal are supplied westbound. The fact that the greater part of the cargo tonnage of the Great Lakes consists of commodities moving in shiploads has virtually limited the purely common carrier services to the passenger and package freight trades.²² Occasionally bulk cargo is accepted by package freight carriers, but this practice is resorted to only during periods of depression in the package freight trade or when bulk

²² See Chap. v

rates are attractively high. Vessels designed primarily for passengers are more narrowly circumscribed in activity, because they are unsuited for the carriage of heavy freight.

The failure of the package trade to increase in keeping with the tremendous rise in the volume of bulk commerce is due to the superiority of the railroad service and to a disinclination on the part of the railroads to establish interchange facilities and joint routes and rates. The majority of railroads reaching lake cities own lakeside terminals for the free interchange of traffic with the carriers by water, but for the most part terminals of the water lines are without rail connections, causing additional transfer expense in the handling of this traffic between the lakes and rails. When rail lake or lake-rail tonnage produces a railroad haul of an appreciable distance beyond the terminal area, no dockage charge is made against the vessel at railroad owned terminals. If the traffic is consigned to or from the immediate vicinity, the lake carriers are commonly required to pay a fee for the use of railroad-owned docks and wharves. In many instances, it is more economical for the vessel to load or discharge local traffic at its own wharf and then proceed to the railroad wharf for receipt or delivery of through traffic. At a number of ports, the water lines contract with the railroads for use of the facilities of the latter, paying an agreed-upon fee per ton for the privilege of handling local freight at these wharves.

The operation of car ferries by the railroads, beginning in 1892, has permitted them to reach territory that ordinarily would be served by the carriers by water. Both bulk and package freight are handled in this manner by 34 specialized steel vessels capable of carrying from 20 to 30 freight cars. The most extensive ferry services are in operation on Lake Michigan which accounts for more than 50 per cent of the car ferry traffic. The proximity of Canadian markets to the coal and steel industries of Pennsylvania and Ohio is responsible for a high percentage of foreign commerce in car ferry traffic on Lake Erie. Considerable miscellaneous freight is carried across Lake Michigan in railroad cars but coal comprises about one half of the total tonnage. Important United States car ferry ports are Menominee, Grand Haven, Manitowoc and Milwaukee on Lake Michigan and Ashtabula and Conneaut on Lake Erie. The Canadian ports of Martland, Bur-

well, and Stanley, in Ontario, receive most of the exports from this country and return a considerable tonnage composed largely of forest products in the form of woodpulp, paper and pulp-wood. The Ann Arbor, Canadian Pacific, Grand Trunk, Pere Marquette and Wabash railways operate the majority of lake ferries.

Although passenger traffic has deserted inland rivers and canals, travel on the Great Lakes has been maintained at a level that has varied little in the past twenty years. Superior comfort and increased speed, combined with the attractiveness of a voyage that has many of the characteristics of ocean travel has permitted the passenger carrying business of the Lakes to continue in the face of competition by railroads and highways. During the operating season, regular schedules are maintained between the major lake ports by a number of lines. The vessels operating in the lake passenger services were described in Chapter V.

PORT SERVICES AND CHARGES

The performance of port services on rivers, canals and the Great Lakes does not involve so many agencies as there are in ocean shipping. The preponderance of bulk shipments has resulted in the development of handling machinery which reduces manual labor to a minimum. On the Great Lakes, coal and iron are loaded and unloaded with amazing speed. The loading record of the steamer *D G Kerr*, 12,508 tons of ore in 16½ minutes and the unloading record made by the *Henry H Rogers*, 12,009 tons of ore in two hours and 25 minutes, testify to the efficiency of bulk handling equipment. These records are unapproached at tidewater terminals, largely because few seaports have a preponderant tonnage in a single commodity, and because specialized sea-going cargo vessels are largely confined to tankers and refrigerator ships. Absence of foreign competition likewise permits lake carriers to operate without the same regard for the return cargo. In overseas shipping, foreign competition must be met in both directions and the higher operating costs of vessels under American registry discounts many advantages of specialized equipment not suitable for general cargo. The small amount of package freight accounts for the comparatively few stevedoring and forwarding companies. The former are essential where

shipments of merchandise freight are handled in quantity²³ Loading, unloading, and stowing general cargo at ocean ports is a necessary service performed by the stevedore and the long shoremen he employs Machinery is usually necessary, but it cannot replace labor to the extent possible when liquid and semi liquid bulk cargoes are handled in great volume by modern methods Forwarding companies likewise exist because of the port services they perform for the shippers of package freight²⁴ Acting as the agent of the shipper at the port, they will attend to all shipping matters including the assembling of small ship ments to reduce total transportation charges Their position is not an important one at inland waterway ports In the future they are likely to increase as the patronage of the package freight lines increases, but as long as the Great Lakes and river tonnage retains its present characteristics the service of forwarders will not be in great demand The comparative simplicity of domestic shipping as contrasted with importing and exporting frees ship pers from the complicated paper work involved in the entrance and clearance of shipments in the foreign trade

Widespread ownership of docks, wharves, and other harbor facilities by railroads and by steel, elevator, coal, and industrial shipping companies, eliminates a number of port charges commonly assessed at ocean ports With few exceptions, ocean steamship companies find it impossible to construct or purchase terminal facilities in harbors of the world, because to do so would not only require large expenditures, but would circumscribe their activities The peculiarities of Great Lakes traffic and the geographical limits of operation make possible the extensive control of port facilities by railroads and industrial lines

At railroad-owned terminals, it is customary to absorb dockage or wharfage charges if the cargo is moved over the lines of the railroad Ore and coal docks and grain elevators provide free dockage space for vessels transporting those products Coal docks are frequently owned by railroads and docks for loading and discharging ore are usually the property of the steel companies When there is a charge at the municipal piers, it varies in amount and in the manner of assessment For example, dockage charges

²³ See Chap xi

²⁴ See Chap xiii

at the municipal pier in Chicago are levied at \$1 50 per foot of vessel length per month in July and August and \$1 00 per foot for the other months of the season. At Milwaukee vessels up to 200 feet in length are charged from \$1 00 to \$8 00 each 24 hours or fraction thereof, vessels exceeding 200 feet in length pay two cents per gross register ton. Wharfage is not a uniform assessment against cargo at Great Lakes ports. At railroad-owned piers, it is customary to absorb the charge when the cargo moves to or from the piers by rail. Certain cargo not providing a line haul over tracks of the railroad owning the pier is charged a wharfage fee that varies with the type of product composing the cargo. There is no such charge at the municipal piers at Buffalo or Duluth-Superior but for use of the city-owned wharf at Milwaukee wharfage charges are published for a limited number of products that move in large quantities, upon application, the fees for other commodities will be quoted. In almost all instances where docks and wharves are owned privately, but when used by lake vessels other than those engaged in the ore, coal and grain trades, special contracts must be made due to the absence of any uniform charge for dockage or wharfage.

Municipal ownership of river terminals on the Mississippi is quite common. A number of them have been added in recent years on the upper river, and in some instances construction loans have been made to cities by the Inland Waterways Corporation for the erection of adequate terminals which have been leased to the corporation upon completion. Wharfage and dockage charges are thus seldom in effect, the former being absorbed by the carrier and the latter provided for in the lease. The private or industrial lines owned by the steel, coal, and sand and gravel companies usually load and discharge at company-owned terminal facilities specially designed to handle a particular product. The numerous smaller carriers operating on the Mississippi and Ohio use municipal wharves and levees and private facilities. It is not customary to assess either wharfage or dockage charges at levees, but charges are made by agreement for the use of privately owned facilities when the owner has no interest in the carrier or cargo.

It is the practice of the Federal Barge Line to lease terminals at the various ports of call along the river. As has been stated, the

majority of terminals so leased are owned by the municipalities. For use and control, the Barge Line compensates the owners by payment of an agreed-upon sum, usually 15 cents per ton of revenue freight loaded or discharged. Ordinarily the leases are for periods of five to twenty-five years, with a provision that permits the Barge Line to terminate or assign a lease should Congress require discontinuance of the Barge service in the territory served by a particular terminal.²⁵ Costs of insurance are paid by the lessors, but expenses of maintenance and ordinary repair are borne by the Barge Line. Damages occasioned by unexpected rise or fall of the river, or by ice, are assumed by the owners. The Barge Line will contract to serve other carriers by water at the above rate of 15 cents per ton plus actual cost of handling cargo and a reasonable profit thereon, this privilege, however, is granted only when it does not interfere with the service of the Barge Line.

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²⁵ Except terminals in Illinois where state law requires that the transfer or assignment of such a lease must be voted upon affirmatively by the electorate of the city owning the terminal.

CHAPTER X

ORGANIZATION OF THE FREIGHT TRAFFIC DEPARTMENT OF AN OCEAN STEAMSHIP LINE¹

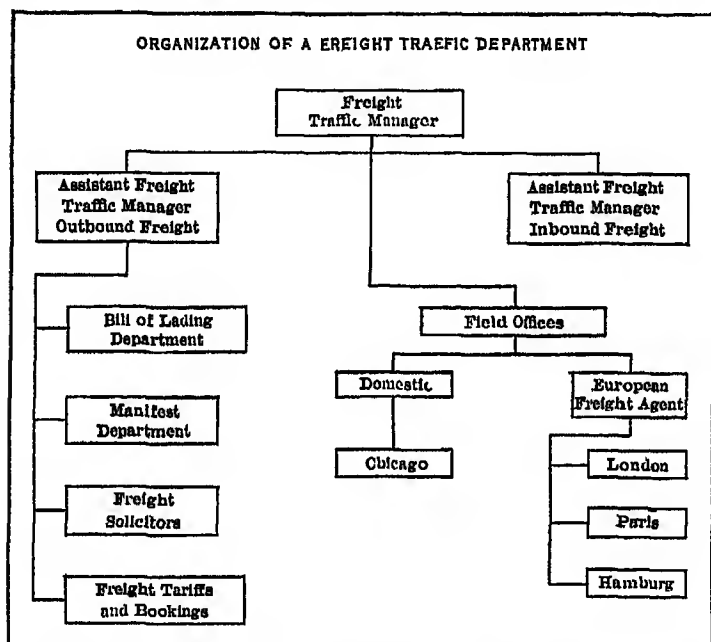
IN the business organization of a steamship line or agency in charge of management, provision is made for a traffic department through which the traffic functions of the line are performed. The department of operations is the only one exceeding it in size. In the event that both passengers and freight are carried it is customary to divide the work of the department with a traffic official in charge of each subdivision and responsible to the general traffic manager.² In many respects the traffic department resembles the sales department found in the organizations of industrial companies because one of the primary functions of the department is the sale of the services of the steamship line to the shipping and traveling public. The work of the freight traffic department includes, however, a number of duties in addition to traffic solicitation and development.

Freight rates are made, tariffs and rate cards issued and distributed, and shipping instructions given. Bills of lading, freight contracts, shipping permits, arrival notices, and delivery orders are among the important documents issued by this department. Frequently the entrance and clearance of vessels and cargo and the settlement of freight claims are additional duties. Proper booking of cargo is particularly important when cargo is offered freely. Maximum profits to be realized from a voyage are closely related to properly balanced bookings that result in full utilization of available space in the holds of the vessel. In addition to the performance of these duties for which the freight traffic department is directly responsible, it is concerned with certain

¹ In the preparation of this chapter much use has been made of material contained in G. G. Huebner's *Ocean Steamship Traffic Management* and Department of Commerce, Bureau of Foreign and Domestic Commerce, Misc. Series No. 98.

² See Chap. xiv.

other questions involving the policies of the line. Line rates are almost always determined in conference with the officials of other companies operating services over the same trade route, and it is the duty of the freight traffic manager or his assistants in the department to represent the line in the negotiations that lead to the formation of a conference agreement to be observed by lines signatory to such agreement or understanding.³ The advisability



FORM 2 ORGANIZATION OF A FREIGHT TRAFFIC DEPARTMENT

of extending or curtailing the service of the company is usually determined after consultation with officials of the freight traffic department. Their opinion is also sought when vessels are to be constructed, purchased or chartered because expert knowledge of traffic conditions is valuable. Size, speed, and design of vessels are influenced to some extent by their opinions, which are reached by giving consideration to factors having a direct bearing upon the success of the vessels from a traffic point of view.

³ See Chap. xxii.

The organization necessary to perform properly the work of the department varies with the size of the company. The responsibility will necessarily be widely diffused in those companies having scores of vessels in operation whereas many duties may center in one employee of a comparatively small line. Specialization in the department is largely dependent upon the volume of business. However, certain large shipping combinations that include a number of distinct operating companies do not disturb the departmental organizations of the subsidiaries which often operate over different routes and under different conditions. In such cases the business organizations of the individual operating companies may be more efficient. The preceding chart gives the freight traffic organization of a typical large steamship line and may be referred to in connection with the following detailed explanation of the duties of the various officials and other employees.

FREIGHT TRAFFIC MANAGER

In many instances, the freight traffic manager holds the rank of vice-president, because the efficient administration of his department has much to do with the successful operation of the company. In the event that the line carries freight exclusively, the solicitation and development of this traffic and the efficient management of the department are all important. Large companies and those of average size usually provide for two assistants to the freight traffic manager. Administrative policies of the line and general supervision of the activities of the department make necessary freedom from work involving office routine. The assistants may be known as assistant freight traffic managers, general freight agents, or outbound and inbound freight managers. Regardless of title, it is commonly the practice to place an aide to the freight traffic manager in direct charge of the sub-departments that deal with outbound and inbound freight. In this manner the head of the department has sufficient time for problems of policy.

Membership in one or more ocean conferences is almost universal among steamship companies, and such agreements frequently govern the level of steamship rates, the compensation to be paid to agents, sailing dates, pooling of traffic, and other

factors vital to the members.⁴ It is necessary for the freight traffic manager to attend conference meetings and to conduct negotiations for the safeguarding of his company's interests. In this he is usually aided by the assistant managers who may offer helpful suggestions concerning the effect upon their respective departments of changes in the level of rates, number of sailings, allotment of ports or other traffic matters. Extensions of the services of the company are dependent, to a great extent, upon reassuring traffic studies. Such extensions may provide for an increased number of sailings over the same route by ships in operation, for construction or charter of additional vessels or for the establishment of services to ports not already reached. In the first instance it is possible to reduce sailings to the original number should traffic prove inadequate for profitable operation. Construction of new vessels is a more vital problem and is undertaken only if reasonable assurance of success can be given. Such assurance can be given only after exhaustive study by the freight traffic manager and his assistants. Leaving questions of propulsion, hull design, and other purely engineering problems to others, he takes an active part in discussions of the size, speed and cargo capacity of the proposed vessels. Provision must be made for certain cargoes requiring refrigeration, ventilation, or other special treatment, proper division of cargo space in new ships is thus a matter with which the manager is concerned and his recommendations are always requested. Extension of the services of the company to new ports of call offers a problem more difficult in some respects because traffic estimates are likely to be less accurate in the absence of operating experience to and from these ports. However, surveys of the traffic potentialities are of great value, and responsibility for them is assumed by the traffic department. The amount of cargo carried to and from these ports by other lines or tramp steamers, and future opportunities for the development of new business are two factors to be weighed carefully before approval is given to plans for an extension of existing services.

The important position occupied by the freight traffic manager of a line of average size makes necessary the employment of a private secretary whose qualifications must fit him for the per-

⁴ See Chap. xxi.

formance of duties requiring tact and personality as well as for the direction of the stenographic work of the office. He should be conversant, in a general way, with the work of other departments of the line and be able to appreciate the necessity for cooperation with such departments. Ordinarily the position is one offering opportunity for advancement by contact with the higher executives whom he meets in the discharge of his duties.

OUTBOUND FREIGHT TRAFFIC MANAGER

In direct charge of outbound freight, the outbound freight traffic manager is sometimes referred to as an assistant freight traffic manager or a general freight agent. Solicitation and development of outbound freight are necessary, but the greater part of his organization is concerned with the details of booking cargo and issuing the shipping papers and documents required by shippers, the line and the government. Booking of cargo with regard for proper proportions of light and heavy articles is of great importance.^a Profitable vessel operation depends in a large measure upon the efficient use of the entire cargo-carrying capacity of the vessel. This capacity is expressed in two ways, (1) deadweight capacity, and (2) measurement capacity. The former is expressed in tons of 2,240 pounds and represents, in terms of actual weight, the amount necessary to lower the ship to the deep load line. Measurement capacity is arbitrarily expressed in tons of 40 cubic feet and the capacity of the vessel is the cubic space available for cargo. Most freight contracts reserve for the carriers the right to accept cargo at "ships option," i.e., according to weight or measurement, and the ideal booking would provide for proportions of light and heavy commodities that would fill all available space with paying cargo and at the same time lower the ship to the maximum draft. Although it is difficult to secure cargo that will meet these requirements for a particular voyage, it is the duty of the outbound freight department to exercise every effort properly to balance freight acceptances. Too great a percentage of either light or heavy articles will result in inefficient vessel use, when it is remembered that both weight and measurement capacity must be considered in order to derive the

^a See R. S. MacElwee and T. R. Taylor, *Wharf Management, Stevedoring and Storage* (1921), pp. 187-188.

maximum revenue from the voyage. A vessel may, for example, have a cubic capacity for 5,600 tons of 40 cubic feet as compared with a weight capacity of 6,200 tons of 2,240 pounds. Careful choice of cargo may result in the booking of 2,400 tons of heavy weight cargo and 4,100 tons of measurement cargo, or a total of 6,500 tons of profitable cargo.⁶

The booking office keeps a freight engagement book containing a record of various shipments for which space is to be reserved. In this manner the amount and character of freight may be determined and the stowage plan of the vessel may be made up by the wharf department in accordance with information received from the booking office. When actual loading operations begin, it is essential that outbound cargo be available in sufficient quantity to permit loading with despatch in order to avoid costly vessel delays in port. At the same time care must be taken to prevent congestion of cargo on the piers, this precaution is made necessary in many cases by the fact that the size of piers and the available floor space have not kept pace with the increase in vessel capacity. The booking office should cooperate with the wharf department to the end that shipments will move forward for loading in proper amounts and at the proper times. Permits to deliver cargo are issued to shippers with instructions regarding the delivery of their shipments to the wharf.⁷

Instructions to agents at the various ports of call are generally sent by the freight traffic manager. If the agents are thoroughly familiar with the practices of the line, the instructions may be contained in a cablegram announcing the sailing of the vessel on the outward voyage, when of a more detailed nature, the instructions of the traffic department are often contained in a letter written by the outbound manager but approved and forwarded by the freight traffic manager. It is customary to include copies of the ship's manifest listing cargo consigned to the agent's port as well as copies of the bills of lading covering the individual shipments. J. A. Slechta says

A similar letter of instructions must be written to the master with an explicit statement of all matters pertaining to the contemplated voyage. With such instructions, the master receives a complete set of manifests

⁶ G. G. Huebner, *Ocean Steamship Traffic Management* (1920), p. 22

⁷ See Chapter xvii for practice where permits are not issued

and bills of lading, which may be used en route in conjunction with the tally sheets (received from the Wharf Department) for the purpose of making up the ship's cargo books. These instructions to both agents and masters are usually made by the Traffic Manager or under his supervision. Separate letters of instruction may be written by the Marine Superintendent and Purchasing Agent, but generally particulars to be included in a general letter are given by these officials to traffic officials charged with this detail of administration.

CLERICAL AND SOLICITING STAFF OF THE OUTBOUND FREIGHT
DEPARTMENT BILL OF LADING CLERKS

In the performance of the various duties under his jurisdiction, the outbound manager has the assistance of a large force. The preparation and signing of bills of lading is in charge of the chief bill of lading clerk. The bill of lading is the principal shipping document in the business of ocean shipping.² It is the final receipt to the shipper and contains the contractual provisions governing the carriage of the shipment. As evidence of ownership of the goods the bill of lading becomes a negotiable instrument when made out to the order of the shipper and is frequently used by him in financing his transaction by means of drafts or bills of exchange.

In order to be valid it must be signed by the chief bill of lading clerk who is vested with authority by the company, usually by action of the board of directors. Authenticity of the signature on a given bill of lading may be proven by comparison with the signatures on file at the offices of the various company branches or agents at home and abroad. Fraudulent bills are guarded against in this manner. Non-negotiable copies are usually initialed instead of being signed.

Preparation of the bills of lading for the signature of the chief clerk is entrusted to one or more assistant clerks. They should have a wide knowledge of the steamship freight business and be thoroughly familiar with the provisions of bills of lading and of the consular requirements of countries served by the line. Before final preparation for signature, the bills are checked against the dock sheets obtained from the wharf department, and the dock receipts which the shipper is requested to return when he presents

² See Chap. XIX.

the bills of lading for signature. It is also necessary to verify the calculations contained in the bills, to verify the rates applicable to the shipment by comparison with the tariffs of the company, to insert special clauses indicated by notations made on the dock sheets or dock receipts regarding the shipment. Accuracy is essential in the work of the assistants of the chief bill of lading clerk, and a considerable period of training is required before they acquire sufficient specialized knowledge properly to perform their duties.

MANIFEST CLERKS

The ship's manifest is a document required by the United States and foreign governments and by the steamship company as an operating and accounting paper. It contains a complete description of each individual shipment of cargo including the names of shippers and consignees, numbers of the bills of lading, and other information that makes possible the identification of all cargo aboard the vessel. Manifests are uniform in so far as the requirements of the United States Government are concerned, but the requirements of other countries may vary.⁹ Accuracy and speed in preparation are imperative because preparation of the manifest cannot begin until loading of the vessel is in progress, as loading proceeds, bills of lading, exporters' declarations, dock receipts, and stowage plan covering the shipments loaded are used in making up the manifest. Care must be taken to avoid inaccuracies, erasure and corrections which are sometimes penalized by the consular regulations of foreign governments. As a necessary clearance paper, the complete ship's manifest must be filed at the custom-house. Although the work of manifest clerks is largely stenographic in character, special training must be had before the proper standards of speed and accuracy are attained.

PERMIT CLERKS

Shipping permits are issued to shippers or their agents by junior clerks of the outbound freight department under the direction of the manager. As has been stated, the permits contain instructions to shippers regarding the delivery of outbound

⁹ See Chaps. xviii and xix.

cargo to the wharf. The work of the permit clerks in filling out the standardized forms of the company is not of a complicated nature, but it is important that they be issued according to instructions and delivered promptly to shippers and agents to insure delivery of cargo when needed. Usually two or three employees are able to perform the task for a comparatively large steamship line. As is stated more fully in Chapter XVII, the permit as a formal document is no longer being issued at some ports.

CLEARANCE CLERKS

In many companies, the clearance of vessels is carried out by manifest or bill of lading clerks. Other lines employ the services of a custom-house broker, for both clearance and entrance of all ships. If clerks are designated as clearance clerks it is their duty to prepare the necessary papers and carry through the clearance at the custom-house according to the requirements of the government. When a customs broker is engaged to perform the work of clearance, the clerks are responsible for the preparation of the needed documents.

FREIGHT SOLICITORS

Traveling freight agents and local solicitors of freight are the salesmen of the steamship line. They vary in number with the size of the company and in addition to securing patronage for the line they may do much to promote good feeling on the part of such patrons. Their work requires familiarity with the rates and practices of the company and with the traffic characteristics of the territory in which they are employed.

BRANCH OFFICES AND AGENCIES

In order to develop and handle the traffic of a cargo-carrying steamship line, it is necessary to maintain branch offices and agencies at important seaports and interior cities. Although the offices and agencies are concerned with inbound as well as outbound freight, and presumably operate under the supervision of the freight traffic manager, they are sometimes responsible to the outbound manager, because most of their work parallels that of the outbound department.

SEABOARD OFFICES

The principal steamship lines maintain cargo services to and from a number of ports other than the home or main office ports. In such cases branch offices are often maintained to perform functions similar to those of the main or home office. Ordinarily, the volume of tonnage handled at these outports does not warrant the maintenance of an elaborate office organization. The same work must be performed in all detail and the duties of the bill of lading, permit, and manifest clerks are accomplished by the consolidation of several functions under one person.

FREIGHT DEPARTMENT DISTRICT OFFICES

In an effort to secure freight for the company by solicitation at the points of origin in the interior, offices are sometimes established in certain large cities. Soliciting, booking and billing cargo to vessels of the line and to destinations overseas do not require an extensive office force nor one equipped to perform all the functions of an outbound office at the seaboard. A comparatively few solicitors and clerks under the office manager carry out instructions emanating from the freight traffic manager or the outbound manager at the home port.

FREIGHT AGENTS

At many ports and inland cities in which the company does not maintain branch offices, cargo is solicited by freight agents or brokers who are employed on a commission basis and bound by contracts with the steamship lines. It is their duty to secure freight for movement by lines represented by them and their compensation is determined by an agreed-upon percentage of the freight money which the lines receive from shipments solicited by them. They also serve shippers in the capacity of freight forwarders, furnishing rate quotations, engaging cargo space and performing other forwarding duties.¹⁰ The office organization of freight agents varies with the amount of business, but will include trained bill of lading clerks and other employees who are familiar with the routine of railroad and ocean shipping. In all cases, these representatives of the steamship companies are ac-

¹⁰ See Chap. XIII.

credited persons, usually members of approved freight brokers associations and frequently members of the New York Produce Exchange Collectively, they are of great importance to the lines and obtain cargo from territory which could not be covered productively by branch offices of the lines

FOREIGN FREIGHT OFFICES

Offices abroad are essential parts of the traffic department

These are under a manager and are divided into departments very similar to those in the home office, but on a smaller scale It is quite customary to work abroad through agencies that become so identified with the company as to be branch offices to all intents and purposes These offices abroad appoint their own agents and freight solicitors through their territory The arrangement compares in organization with that at home There is seldom any interchange of personnel from the offices abroad to the offices at home or from the interior offices to seaboard offices ¹¹

There are obvious advantages in the development of representatives who have a thorough knowledge of the traffic characteristics and possibilities of a given territory For this reason, as stated above, it is the object of the department to reduce to a minimum the transfers of employees from one office to another The value of office personnel, particularly solicitors, is enhanced by continued service in one locality Foreign branches or agencies maintain their own traffic organizations They appoint agents and solicitors to cover the territory allotted to them and maintain a list of employees corresponding to that of similar offices at home Where the volume of business does not justify the maintenance of a branch office, the agents appointed frequently become so closely associated with the activities of the line that they are, to all intents and purposes, foreign branch offices

INBOUND FREIGHT TRAFFIC MANAGER

This division of the freight traffic department is ordinarily much smaller than the outbound department Frequently there is no special organization for the handling of inbound freight,

¹¹ R S MacElwee, Training for the Steamship Business, Bureau of Foreign and Domestic Commerce, Misc Ser No 98

the work being performed by clerks, under the direction of the official who is responsible for the outbound traffic. However, solicitation and handling of return cargo are essential to successful operation. Steamship operating profits are rarely realized in the absence of balanced cargo outward and inward. While it is true that the greater part of the return cargo is obtained for the line by foreign branches and agencies, solicitors at home endeavor to swell inbound bookings by persuading importers to indicate a preference for a particular line to the persons abroad from whom they make their purchases. Importers are often in a position to determine the routing of their freight and solicitors make every effort to sell the services of the company by explaining its rate or other advantages. Smaller steamship lines may depend upon the same solicitors to acquire traffic in both directions.

Other employees of the inbound department are senior and junior clerks, traffic specialists and occasionally custom-house clerks. Their duties may be divided as follows: (1) issuing notices of arrival and freight bills to consignees, (2) entering of vessel and cargo at the custom-house, (3) forwarding or transshipping of cargo, (4) warehousing. In order to effect prompt settlement by consignees and to enable them to enter their shipments, notices of arrival are prepared and sent. The notices contain a description of the shipment, instructions to present the original bill of lading properly endorsed, and a notation concerning the time when cargo may be taken from the pier.

When all freight charges have been prepaid the notice of arrival may be accompanied or followed immediately by a delivery order instructing the clerk at the pier to surrender the cargo specified. The issuance of the delivery order, however, occurs only after presentation of the original bill of lading. Freight money due from collect shipments must be paid before the department will issue delivery orders. In some instances, the consignee has not received the original bill of lading from the shipper, and, in order to obtain possession of the cargo, is required to post an indemnity bond to protect the company should complications arise from the surrender of the cargo without the bill of lading.

Entrance of the vessel requires presentation of the ship's manifest, copies of consular invoices and bill of health and other papers demanded by the government. Although the department is seldom responsible for the actual entrance of the vessel, it can be of material assistance to the master and the customs broker who assists him. Customs procedure is ordinarily too involved for all but specialists. As a consequence, importers or their agents also entrust the entrance of shipments to customs brokers. In case the cargo is to be forwarded to the interior, transhipped, or stored at the port of entry, the services incident thereto are performed by the inbound department or by customs brokers acting for the line or for the consignees. Because the entrance of vessels and cargo is a more complicated procedure than clearance, it requires the efforts of a large part of the inbound personnel, this, and the fact that the primary duty of a large part of the employees of the outbound department is to induce shippers to patronize the line, distinguish from one another the two divisions of the freight traffic department.

The character of the services offered by the line necessitates changes in the detailed work of both the inbound and outbound organizations, although the principal functions remain the same. In the operation of fast passenger lines general cargo is replaced to a great extent by valuable package freight and mail requiring prompt, exact, and careful handling. Many common carrier lines and others semi-industrial in nature carry a limited number of commodities common to a particular trade route, or depend upon one commodity for either the inbound or outbound voyage. A number of the companies operating to the West Indies and Central and South America have traffic characteristics unusual in this respect. Bulk cargo such as fruit, ore and nitrate may supply the larger part of the homeward lading. Outward, the vessels often carry general cargo, package freight and passengers in order to reduce the costs of operation. Such variations in operation are responsible for differences in the detailed organization of the freight traffic department. Solicitation, handling, entrance and clearance are simplified when a few articles make up the greater part of the cargo carried. However, the importance of the line of each commodity increases with the volume, and as specialized knowledge becomes more necessary greater emphasis

will be placed upon such knowledge in carrying out the necessary modifications in the traffic organization

COÖPERATIVE FUNCTIONS

Cooperation with other departments upon matters of policy has been mentioned at the beginning of the chapter. In performing everyday functions, the freight traffic department has almost constant contact with the treasurers, controllers, and operating officials. Collection of all freight charges owed to the line is a duty of the cashier who reports to the treasurer. Freight calculations on the bills of lading are verified and held, for outbound shipments, until paid by the shippers or their agents. Bills of lading covering inbound cargo on which freight charges are due are surrendered to the inbound department and from there are turned over to the cashier's office to be held until proper payments are made by the consignees. The accounts of the cashier and assistants are in turn audited by the controller's department.

Cooperation with the wharf department is of great importance. As a subdivision of the operations department, it is responsible for the actual receipt, handling, loading, and discharging of all cargo solicited and booked by the traffic employees for carriage inbound or outbound. Shipping permits, described above, are the shipper's instructions regarding delivery of cargo to the pier and are presented to receiving clerks to be exchanged for dock receipts. Dock sheets and stowage plans are sent by the wharf department to the outbound department to be used as a basis for the preparation of the ship's manifest and for other purposes. The release of inbound shipments to consignees or agents is effected by presentation at the pier of the delivery order issued by the inbound department. The proper performance of these and other functions of the two departments requires a willingness to cooperate and an appreciation of the value to the company of harmonious contact in carrying out the respective duties of the departments.

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CHAPTER XI

THE SERVICES OF WHARFAGE AND STOWAGE

THIS chapter is a statement of the importance of cargo handling facilities and methods and a description of the procedure commonly followed. In Chapter XV the general activities of the wharf department will be discussed briefly without repeating the detailed description of the procedure of loading and unloading vessels or the responsibilities assumed by the wharf department in the performance of this important task. It is the duty of the steamship company to load and unload cargo without loss or damage and to man and equip the vessel for the safe transportation of the commodities accepted for carriage. This phase of ship operation is entrusted to the wharf superintendent for performance or supervision. Probably no phase of steamship operation provides greater penalties for inefficiency in management. The following discussion deals with the stevedore, the longshoremen, stowage, and the prevention of loss to the vessel operator from improper performance of the stowage and handling operations.

THE STEVEDORE

It is essential to distinguish between the stevedore and the longshoremen. The stevedore has an extensive knowledge of ships and their equipment, and of commodities. He is able to prepare a plan to be followed in loading a vessel, to follow a plan prepared by another, and to organize and direct the men who are employed to perform the actual labor involved in moving cargo to or from the holds of the vessel. The longshoremen are employed by the stevedore.

Stevedores may be divided into two groups: (1) contract, and (2) shipping company. At every port of consequence, stevedoring firms are available for loading and discharging vessels. When performed by a contract stevedore, the charge for this service is

usually fixed at a definite sum per long ton of cargo, but certain commodities such as grain, hides, coffee, tobacco and several others may be charged for on a unit basis. Charges are usually based upon the long ton of 2,240 pounds for handling general cargo, but may vary widely for other types of cargo and are not uniform at the various ports, because differences in labor conditions, cargo handling facilities, and other factors affect costs. The duration of the contracts varies, but one year is the most common period.

The shipping company stevedore is an integral part of the wharf department and as such is a regular employee of the line, he and a limited number of foremen are salaried employees. Ordinarily, only the larger steamship companies handle their cargo in this manner because the maintenance of a stevedoring organization requires regular and frequent sailings of vessels in order that the loading and discharging operations may be performed economically. When cargo is handled by the shipping company, it is done to perform at a saving the task otherwise entrusted to the contract stevedore. The saving may arise through more economical performance of the stevedoring function, a reduction in claims by shippers and receivers of freight for loss and damage, or from both. The contract stevedore expects to profit at the rates charged and by displacing him with a stevedore and assistants, who are regular employees, the company hopes to reduce handling costs by saving that profit and if possible to improve upon the efficiency of the average contract stevedore.

Loss and damage to cargo which is caused by careless and improper handling and stowing are sources of considerable expense to shipping companies. Despite the fact that the contract stevedore must exercise care in loading and unloading a vessel and is dependent, for future contracts, upon satisfactory service, cargo loss and damage are a responsibility of the ship operator. For this reason, some lines prefer to do their own stevedoring, custody of all shipments thus often remains with the line from the time the shipments are delivered at the pier until the consignee or his agent receives them at the various delivery points.

LONGSHOREMEN

The average longshoreman is essentially a laborer of more than average physical strength but of no particular skill. Immigrants formerly constituted a large percentage of the group in north Atlantic ports, while in the south Atlantic and Gulf ports, the great majority have been Negroes. The work of the longshoreman is of a casual nature, and he is paid on an hourly basis, because work is available only when vessels are in port. He is idle from time to time and has no assurance of a minimum period of employment per month or year. Ships arrive and depart at irregular intervals. A storm at sea may delay regularly scheduled vessels, causing a number of them to put into port at the same time. A period of feverish activity ensues for a few days to be followed by a period of comparative idleness. In certain seasons of the year cargo may be offered in great quantity while in other seasons it may be scarce. Fluctuations in the number of men employed do much to make the life of the longshoreman unattractive to a large share of the labor supply of the seaport cities. The responsibilities ordinarily assumed by the regularly employed laborer in other industries are often impossible for the longshoreman. Usually he cannot be certain of employment for more than a few days at a time, nor can he determine the length of the next period of idleness. It would be difficult to select work of a more casual nature, but the pay per hour is often more than twice that paid to other day laborers. In recent years, efforts have been made at Los Angeles, Portland, and Seattle to follow the practice of decasualization prevailing at many ports in Great Britain and at Hamburg, Rotterdam, and Antwerp on the continent. Under this scheme all longshoremen are registered at a central agency and the total labor supply of the port consists of those on the register. Employers must agree to hire men through the agency from the list of those registered instead of selecting the men wanted from a semicircle or "shape" of men who assemble in front of the piers at a given hour before the work of loading or discharging cargo begins. Since the shaping takes place at the same time at many piers, there may be a surplus of men in some sections of the port and a scarcity in others. At ports where efforts towards decasualizing have been made, better dis-

tribution of labor is secured with benefits to both laborers and stevedores

Longshoremen as a group are unskilled and are generally paid the same wage regardless of the task performed by the individual. However, they may be classified according to (1) the trade engaged in by the vessels which they load and unload, (2) the type of commodity handled, or (3) the task assigned in the work of loading or unloading any vessel.¹ Longshoremen who are employed in handling deep-sea cargo are considered to be on a somewhat higher plane than those engaged in loading and discharging coastwise vessels, and the latter, in turn outranks the "shenango" or harbor craft worker. Certain longshoremen become associated with the handling of particular commodities such as grain, sugar, bananas, or barreled products and may be employed for a considerable part of the time by stevedores or vessel operators who specialize in such traffic. This may or may not demand superior skill. Barrels must be stowed by trained men, but bananas may be handled by comparatively unskilled laborers. The third method of classifying dock workers divides them according to the actual task each performs in loading or unloading any ship or cargo. At some ports, a distinction is made between the men who work on the pier, on deck, or in the ships' holds. There are also winchmen, gangway men, and other specially designated workers whose classification is more or less permanent until the workers are promoted to positions of greater responsibility.

When cargo is to be handled to or from a vessel the longshoremen are divided into groups or "gangs," one for each hatch to be worked. The further division distributes the members of each group between the pier, the deck and hold. An average group engaged in handling general cargo will consist of 18 to 24 men.² In loading, approximately half of the men will be in the hold of the vessel placing or stowing the cargo which the men on deck and on the pier have brought aboard. Because it is an easier task to "break out" cargo than to stow it, a smaller number of men will be found in the hold when the ship is discharging cargo.

¹ T. R. Taylor, *Stowage of Ship Cargoes*, Department of Commerce, Bureau of Foreign and Domestic Commerce, Miscellaneous Series No. 92.

² For a detailed discussion see *Ibid.*, and R. S. MacElwee and T. R. Taylor, *Wharf Management, Stevedoring and Storage*.

However, there are a number of factors that disturb any given plan for distribution of the workers as well as the number required in each group. For example, when loading begins, distances to be traversed by hold workers are greater than when loading nears completion. The use of conveyors or mechanical transfer equipment on the pier affects the number of men necessary in that subdivision, and certain commodities such as grain, steel, and cotton are handled in a manner that may demand a change in the number and distribution of each hatch "gang." Only as a general observation can it be said that hatch gangs consist of from 18 to 24 men or that one half of these men are assigned to the hold in loading and one half to the pier in discharging cargo. It has been suggested that higher efficiency in the stevedoring operation would result if it were possible to bring about approximate uniformity in the size of hatch "gangs." Many time studies have been made of various phases of cargo handling and continued use of that method of determining the productivity of groups of different sizes might prove beneficial to the industry.³ When possible it is always desirable to work the same men together. This is of particular advantage in the hold, where the limited space and the type of work require that each man be familiar with the characteristics of the others.

FACTORS TO BE OBSERVED IN THE SELECTION AND STOWAGE OF CARGO

Certain general principles must be observed both in booking and stowing cargo, if these duties of the traffic and wharf departments are to be performed in an efficient manner. Failure to give proper attention in one or more of them may, and often does, result in serious loss or damage to the cargo or vessel, and will constitute a serious obstacle to profitable operation of any ship or line of ships.

A. The traffic department or booking agent should make every effort to secure a well-balanced cargo. A balanced cargo is one that will fill the available cargo space of a particular vessel and, at the same time, provide sufficient weight to lower the vessel to her deep load line or maximum draft. Too great a proportion of relatively light shipments will fill the ship but will not take advantage of the maximum dead-weight capacity. If heavy

³ See Bulletin No. 550, U. S. Bureau of Labor Statistics, Dept. of Labor.

articles predominate, unfilled cargo space will remain when the vessel has been lowered to the deep load line. In the former instance dead-weight capacity, or the ability of the ship to carry additional weight, has been sacrificed, in the latter instance cubic capacity, or space in the holds, remains unused.

To determine the type of cargo best suited for a given vessel, the volume of the ship's cargo space in cubic feet is divided by the dead-weight tonnage, after deducting from the latter the tonnage represented principally by fuels, stores, and dunnage. The result will be the number of cubic feet that may be occupied by a ton of a commodity which will lower the vessel to the deep load line and fill all cargo space. Although the relation of dead-weight tonnage to cubic capacity is not the same in all ships, the following example will illustrate the manner of computing maximum possible lading. A vessel having a cubic capacity of 357,000 cubic feet may have a dead-weight capacity of about 7,500 tons. Subtracting 1,000 tons for fuel, stores, and other necessary deductions leaves a useful dead-weight tonnage of 6,500. The cubic capacity divided by the useful dead-weight tonnage will give approximately 55 cubic feet as the amount of space that each ton of an ideally suited commodity may occupy in the hold of the vessel. The number of cubic feet occupied by a long ton, 2,240 pounds, of any article is called the "stowage factor." In the example used, the commodity best suited for that particular vessel is one that will average 55 cubic feet to the ton. But the stowage factor varies with different commodities, steel billets and copper ingots have a factor of 9 or 10, baled cotton 75 to 130, depending upon the density of the bales, and many canned goods approximately 60. In view of the fact that the cargo of the ordinary cargo liner consists of scores, sometimes hundreds of different commodities, it is necessary for the traffic department or booking agents to exercise as much care as possible in selecting shipments in order that the average stowage factor of all cargo accepted will approach the stowage factor of the cargo best suited for a given vessel. Unfortunately, it is seldom possible to choose the particular shipments needed. Line vessels must maintain schedules planned in advance and cannot wait in port for the booking of additional cargo. During a period of depression the question of selection is lost sight of in an attempt to obtain

revenue-providing freight of almost any kind. In the days of the sailing ship, considerable time was often spent in port because it was more essential, on account of the few voyages made and because of the absence of ballast tanks, that a full lading be obtained. Steam and motor ships represent large investments and must be kept moving if they are to be operated profitably. Ordinarily, from the point of view of safety of the vessel, absence of sufficient cargo to insure seaworthiness is overcome by water ballast tanks that permit the addition of sufficient weight to counteract cargo shortage.

However, the booking of a cargo having the proper average stowage factor will not alone necessarily insure a completely loaded ship. Irregularities in the shapes of packages and in the holds of the vessel leave a certain amount of unfilled space. This space is known as "broken stowage" and of course is unproductive unless the cargo booked includes a number of shipments consisting of small packages or units which may be used to fill vacant spaces existing between larger and more irregular pieces or between those pieces and stanchions, beams, or other obstructions in the hold. A reduction in the amount of broken stowage not only provides additional freight money but often reduces the costs of dunnage and the possibility of loss and damage to vessel and cargo. It should be remembered that the greater part of this discussion applies only when cargo is freely offered. Unfortunately it is not often that the traffic department or booking agent is able to select a proper cargo. More often it becomes a question of accepting almost everything obtainable.

B Speed and efficiency in handling cargo. To show the importance of speed in loading and discharging cargoes, it is only necessary to call attention to the cost of the stevedoring operation and the cost per day of holding a vessel in port. Of all direct operating costs (excluding only insurance, depreciation, and interest) from 25 to 30 per cent will be made up of cargo handling costs. Close attention must therefore be given to so important an item of expense and constant efforts made to reduce the per ton costs of handling cargo to and from the ship. It is not possible, however, to adopt any and all measures that might lead to a reduction in per ton costs, nor, in all instances, to follow methods admittedly more efficient. The governing factor is the

cost of stevedoring plus the cost of holding the ship in port. It is quite probable that fewer men than customarily used would load or unload a vessel at a lower cost per cargo ton. The productivity of labor would be increased and the entire function would be performed more efficiently. But as the number of workers decreases, the time required to load and discharge increases, the ship is not earning, and certain operating and all fixed charges, including wages, interest, insurance, depreciation, dockage, and fuel for auxiliary purposes, continue to accrue. Maximum efficiency in the stevedoring function is thus subservient, to a certain degree, to the inclusive costs of ship operation. Frequently an abnormal number of men may labor night and day to complete loading or discharging despite the relative inefficiency of too many workers and the increased rates of pay for hours worked overtime. In such instances handling costs are known to be high but unavoidable if the ship is to adhere to a scheduled sailing date, or time in ports is reduced to a minimum. Prompt turn around is an important consideration.

The cost of each day in port is readily determinable for a given ship. It consists mainly of interest and depreciation on the amount invested in the vessel, and insurance on the existing or depreciated value of the vessel, an average charge per deadweight ton per month or other stated interval for maintenance and repairs, dockage and other port charges, wages, subsistence and fuel. For a large cargo liner, the total of these costs may reach \$1,500 or more per day. If this total is added to the daily earning power of the ship, when it is at sea performing the service of transporting cargo for hire, the true importance of rapid turn-around is realized. It becomes obvious that stevedoring methods and costs are not always determined alone by efficiency. The addition of extra men and equipment or both may increase the handling cost per ton, but, if the ship puts to sea one day earlier as a result, the maximum amount that could be profitably spent for additional wages and equipment must be governed by the daily cost of holding that vessel in port. In many instances, this disregard for increased handling costs is unavoidable, but it is not to be inferred that steamship and stevedoring companies do not exert a constant effort to apply efficient methods in order to avert unnecessary expenditures. The following are

among the most important factors in the promotion of economical cargo handling

1 Prompt arrival of both vessel and outbound cargo Vessel delays are usually unavoidable and may be the result of adverse weather conditions, accidents to the ship or its machinery, or diversion from course to render aid Properly manned and equipped ships are naturally better able to maintain schedules and are less likely to experience delays of any kind The normal time spent in port will be shortened when arrivals are delayed and cargo handling costs rise because of the need for speed in loading and discharging in order to free the ship as quickly as possible

The failure of shippers to forward cargo to the pier is some times the source of expensive delays to the vessel and increases in stevedoring costs Shippers should be notified to deliver their goods in ample time for sorting and placement at the proper places upon the pier as indicated by the stowage plan This permits all hatches to be worked, if the amount of outbound cargo warrants it, and the placing of the various shipments in proper order for loading Shipments arriving late are a constant annoyance and expense

2 Proper handling of equipment, (a) on the pier, and (b) on the vessel A study of various types of cargo handling machinery such as hand trucks, electric trucks and trailers, telfers or overhead tracks, conveyers, cranes, platforms and other similar machinery should be of assistance in determining the types best suited for use on a given pier Likewise, on the vessel the winches, masts, boom and tackle in general should be adequate and of the proper design, if costs are to be maintained at a reasonable level Delays in loading and unloading are commonly due to the ship's machinery as well as to inadequate pier equipment There are numerous examples of false economy in this connection

3 At many ports throughout the world, cargo is carried to and from vessels anchored in rivers or bays because of congestion at the piers or because cargo originates at or is destined for more than one point in the harbor Sufficient lighters should be provided to supply cargo as rapidly as it can be handled to or from the vessel

4 When possible, all hatches should be used Each hatch gang

of longshoremen works quite independently of the other and, if the cargo is of the proper character and amount, much time will be saved with no increase in per ton cost of handling by the use of all hatches. Frequently the principle is carried even farther, and both sides of the ship are worked at the same time by using lighters on the off-pier side.

5 The productivity of labor should be checked by study from time to time to determine whether increases may be attained. The casual nature of the work has been mentioned earlier and it remains as one of the serious detriments to greater productivity. Conceivably some improvement is possible in the direction of "gang" composition and distribution, specialization, reduction of overtime hours which are less productive and more costly, betterment of working, living, and recreational conditions, and increased safety.

6 In recent years, greater attention has been given to the effect upon cargo handling costs of improvements in the design of vessels. It has long been customary to transport certain bulk commodities in especially designed vessels, such as tankers and ore-carrying ships, but no little emphasis has been placed upon the economies possible from improvements in the design of the general cargo vessel. Too often hatches are small. This retards speed in raising and lowering the lifts and leaves considerable distance between the hatchway and the wings or ends of the holds, cargo must be moved this added horizontal distance by the men in the hold. At the same time some marine architects advocate an increased use of side ports or openings in the sides of the ship that permit loading and discharging without extensive vertical movement of the cargo. With some exceptions, the operation of ships so designed has been confined to coastwise and nearby trades largely because of alleged structural weaknesses in the ship resulting from side ports. An increase in the number of side ports on ships operated in the domestic trade promises considerable economy and may be the forerunner of a widespread extension of the practice. Improvement in winches and their location aboard ship and clearance of holds by elimination of obstructions are other considerations affecting handling costs. The growth of regular line traffic should make possible the construction of more ships especially designed for particular trades.

Such vessels have an admitted advantage over general-purpose cargo carriers, and in many instances cargo-handling costs are greatly reduced by suitably designed vessels

C Prevention of loss or injury to vessel, crew and cargo Although the selection of properly balanced cargo and the actual costs of loading and discharging are of great importance, the advantages gained by the efficient and economical performance of those duties may be more than overcome by losses arising from faulty placement of cargo in the holds when loading the vessel Failure to exercise care in stowage increases the number of lost and damaged shipments and endangers the ship, in many instances it has been known to bring disaster that involved loss of life as well as property Efficiency in actual handling in no way insures against errors in the stowage of cargo The stevedoring function then includes more than the economical movement of cargo to and from the vessel Proper stowage in the holds, if ignored, can be of far greater importance than reduced costs per ton for stevedoring Damage to the ship may result from incorrect distribution of the cargo, shifting of improperly secured cargo, or from the character of the commodity carried

Improper distribution may be vertical, longitudinal or transverse The vertical position of cargo in the holds affects both stability and rolling Stability may be defined as the ability of a vessel to return to an even keel when rolled to one side or the other If a vessel is loaded in a fashion that too far decreases the ability of the vessel to again assume an upright position, it is in danger of capsizing On the other hand, a vertical disposition of cargo that increases the righting force of the vessel to too great a degree will aggravate rolling and cause the vessel to oscillate before it again rests upon an even keel Excessive rolling like wise may lead to straining or loss of the vessel, and often results in undesirable shifting of commodities in the holds with resultant damage to the ship, the cargo, or both

Careful longitudinal distribution of cargo is necessary to avoid undue strain upon the ship and to preserve a proper trim An improperly trimmed vessel handles poorly and with impaired efficiency However, concentration of weight at the bow and stern, or amidships, might give the proper trim to the ship but overloading at the ends increases pitching, and overloading amid-

ships increases the tendency of the vessel to buckle, either condition causes undue strain and endangers seaworthiness

Errors in transverse distribution of cargo are probably less frequent because they result in an obvious listing of the ship to the heavy side. A pronounced list is dangerous and is more often the result of an accident at sea than of faulty stowage. Vessel strains resulting from poor transverse distribution are not often dangerous.

Shifting cargo at sea is an ever present possibility whenever there is vacant space in the holds and it may occur when the cubic capacity of the ship has been completely filled at the time of loading. Contrary to popular conception, cargo does not always shift toward the sides of the vessel. It may drop vertically by dropping through from an upper deck, or by crushing cargo below in the same hold, and it may shift toward the bow or stern by breaking through the ends of the holds. Longitudinal shifting commonly results also when improperly secured articles shift into unoccupied spaces in the holds. The effects of shifting, in addition to damage of the various shipments involved, are practically the same as those that result from poor original distribution. Pitching and rolling are increased, the ship is strained, and in the case of transverse movement, a pronounced and dangerous list often results. In order to minimize the possibility of shifting it is desirable to (1) fill available capacity of the hold to eliminate vacant space, (2) protect shipments which might be crushed and thus increase vacant space, (3) stow cargo as securely as possible and shore it in place if necessary, (4) confine bulk cargoes, such as grain, in small areas by dividing the holds into a number of individual compartments.

In addition to damage to the ship resulting from the faulty stowage of commodities which are not in themselves dangerous, damage to cargo and vessel frequently occurs because many inherently dangerous articles do not receive proper attention during and after loading. The most careful supervision will not always avoid such losses, but certain precautions should be taken against losses known to be preventable. A discussion of these precautions is included in the following description of methods to be followed to prevent damage or loss to cargo.

Profitable operation of a steamship line can be seriously

hampered by excessive payments to shippers for loss and damage. Careless handling and stowing of cargo, in fact, not only decreases profits upon cargo carried but also influences shippers against those companies which have unsatisfactory records in that connection. The stevedore has no direct liability other than to handle cargo safely and economically under the direction of the ship's officers and wharf superintendent. It is essential that officers and wharf superintendent possess and exercise a thorough knowledge of the work of the stevedore in order that the interests of the vessel operator may be protected. The most advanced maritime nations will not license deck officers who have inadequate knowledge of cargo handling and stowing.

Cargo loss and damage results frequently from (1) carelessness or the use of defective equipment in transferring between pier and ship, (2) crushing and chafing, (3) moisture and evaporation, (4) heat and cold, (5) poor ventilation, (6) vermin, (7) pilferage.

Common errors in the transfer of cargo between the pier and the vessel include placing of light, fragile articles under heavier ones in the sling or on the platform, the careless use of hooks, failure properly to secure slings or hooks, and the use of defective winches, ropes, booms, and other equipment. Light boxes or cases placed under heavier ones are likely to be damaged when lifted from the pier or set down in the holds. Care should be taken to protect them from the pressure of heavy articles or abrupt contacts with pier, ship's side or deck. Some commodities do not suffer damage from any ordinary shock or pressure but are quite likely to be injured by the penetration of hooks. Bales of cotton and certain types of casks are examples. Few articles of general cargo escape damage if the lift is released while in the air by defective gear or insecure fastening. The force of the impact is great and boxes or other units, if not broken by their own weight, are damaged by the force of other articles falling upon them or by falling into the water. It is false economy to face loss of that character when a reasonable expenditure for maintenance or replacement of worn or defective equipment insures against it and perhaps increases handling speed.

At sea there is a constant motion set up by the action of waves and swell. The motion increases in violence during storms but is

never entirely absent in calm weather Unless cargo is so tightly stowed that there is very little friction, damage results from the contacts of the various articles with one another Rope, fruit, silk, and paper products are examples of commodities susceptible to damage from chafing In addition to actual damage from chafing, heat is sometimes generated sufficient to ignite some of the most inflammable shipments or to alter the character of those unable to withstand a high temperature It is impossible to achieve homogeneous stowage of general cargo which consists of scores of different articles packed, barreled, or crated in many different ways The problem of the stevedore and ship's officers, when compact stowage cannot be obtained, is to reduce friction as much as possible by following certain minimizing practices Wood is sometimes inserted between articles likely to chafe Strips are sometimes nailed to chests or other units of a tier to hold them in place and to separate them from one another Chocks and wedges are used to reduce cargo motion and to increase the solid character of the hold contents In the carriage of bulk cargoes, particularly grain, the hold may be divided by shifting boards which are temporary bulkheads of wood extending fore-and-aft and from floor to deck Cargo motion or friction is thus confined to a small area and danger from shifting of the entire cargo eliminated Tank vessels are designed and constructed with permanent divisions of the tank capacity to avoid the destructive forces that would be set up by motion of the entire cargo as a unit

Crushing of cargo may result from shifting, careless storage, or placement in an unsuited part of the ship Shifting and its prevention have been discussed earlier While careless stowage will result in shifting, reference is made here to stowage that fails to protect articles liable to damage from excessive weight above or by pressure against beams, stanchions or other cargo If it becomes necessary to proceed at once with the stowage of relatively fragile cases, barrels or other articles due to the late delivery at the pier of heavier cargo units or for other reasons, the light articles should be protected by placing flooring over them to distribute the weight of the heavier cargo, or when possible, the latter should be distributed in other holds Motion of the vessel is greatest at the bow and least amidships Crushing

is often avoided by placing susceptible shipments in cargo space least affected by movements of the ship

A list of commodities susceptible to damage from moisture would include a high percentage of all shipments moving by water. The prevalence of moisture and the susceptibility of most articles to damage by it combine to create an ever-present problem in ship operation. Commodities are affected in a variety of ways. Textiles and paper are discolored, machinery, canned goods and metal products rust, foodstuffs become inedible, grain ferments and generates heat, chemicals change in composition, and marble and wood products are damaged by stains. Sources of moisture are numerous. It may originate from the decks or hatches above, leaks in the hull or in steam or water pipes, condensation, or wet goods which make up a part of the cargo. Cargo damage from moisture is probably greater than from any of the factors under discussion. The difficulties encountered in attempts to prevent loss are obvious. The vessel operates in water which in heavy weather often comes aboard in great quantities, exclusion of sea water is a task in itself. Hatch covers, seams, and decks should be water tight. Careful battening, calking, and filling rivet holes will do much to protect the cargo. The multitude of steam and water pipes are the sources of leaks, and, because they differ in temperature from the air in the hold, they cause condensation which provides water that may drop upon the cargo. Condensation and the effects thereof can be guarded against by covering cargo with tarpaulins, or by wrapping pipes, stanchions, and other offending parts with a canvas which will absorb the moisture. Damage due to bilge water or unexpected leaks may be reduced or avoided by proper pump maintenance.

The first precautions against damage from moisture should be taken when the ship is being loaded. Wet goods, or those having a high moisture content, should be separated from dry goods. There is always danger that casks, barrels and other containers of liquid may break, releasing their contents in the hold. Cereals, salt, bone meal, and many other products have such an affinity for moisture that they are able to absorb it from other shipments having a very low moisture content. There have been instances of damage to commodities of this type arising from stowage close to wooden casks from which moisture was drawn. Protection

from rain during transfer is necessary for most articles, others should not be loaded during wet, or even very foggy weather.

Most wet goods suffer loss by evaporation which is governed by heat and the presence or absence of moisture in the air or in surrounding cargo. Unless carried in metal containers these products should be kept in a comparatively cool, moist atmosphere, and away from the engine room or goods that have a tendency to heat in transit or to absorb moisture. The bow and 'tween-decks and spaces near the hatches are best suited because they are cooler than other parts of the ship. Evaporation is often increased by the circulation of air through the cargo but in many instances ventilation is necessary and evaporation can be controlled only at the expense of other cargo that requires ventilation.

A great variety of shipments are damaged by extremes of temperature. The losses from heat far exceed those from cold. Heating of cargo may occur in one or more of several ways. On voyages over tropical trade routes, atmospheric temperatures are high. Direct rays of the sun, even in temperate climates, are sufficient to damage many commodities. Within the ship, engine and boiler rooms, steam pipes, and the spontaneous heating of cargo, are productive of high temperature.

The effects of heat are varied. Perishables, including meat, fruit, butter and other foodstuffs such as grain and certain beverages, are especially susceptible to damage, largely because germination and bacterial activity are stimulated. Butter melts and becomes rancid, fruit decays, and other products undergo changes that impair their value as foods. Shipments not ordinarily looked upon as perishable are likewise ruined or badly damaged by high temperatures and may at the same time cause damage to other cargo. Both ship and cargo are endangered by spontaneous heat or combustion. Many animal and vegetable, and a few mineral products, are included in the list of commodities having this characteristic. Grain, tobacco, wool, cotton, coal, sulphur, and lime are examples. Excess heat whether it originates in the cargo or from another source increases the fire hazard. Oils, paints, varnishes, resin, and other similar products give off explosive vapors, others, particularly coal, ignite and endanger the vessel, crew and other cargo.

Losses from cold are not common. Excepting in high latitudes the temperature in the holds does not commonly fall below the freezing point. When deck cargo is carried it is often subjected to low temperatures and must receive special protection.

Several precautions are employed to prevent loss and damage by heat. Careful stowage near the hatches, in the 'tween decks and near the bow or sides of the ship is essential. The sides and bow are usually cooler due to contact with the sea and the spaces in the 'tween-decks and near the hatches are better ventilated and more accessible. When weather permits, hatch covers should be removed at intervals during the voyage to increase the circulation of air. Ventilators should be adjusted with changes in the weather in order that the holds may receive the maximum of ventilation from that source. Added protection will result from packing of shipments in materials that are poor conductors of heat and by providing space in the cargo for the circulation of air. Bulk cargoes likely to heat should not be accepted if in improper condition. Grain and coal must be dry, for example, and certain other products well aired before loading. The effects of poor ventilation are apparent from the preceding discussion. Poorly ventilated cargo space harbors moisture which in turn promotes decay, the accumulation of dangerous gases and odors, and the generation of heat.

Vermin—such as rats, mice, roaches, worms, and other types—are not only troublesome and undesirable but occasionally so destructive as to add considerably to the costs of operation. Rats are the most destructive of all vermin and in addition they are carriers of disease. There have been many remarkable instances of the ability of rats to destroy cargo. Some years ago, on a voyage of 29 days, rats cut 44,000 of 46,000 bags of wheat in the holds of a vessel.⁴ Other less surprising instances might be cited. Whenever the cargo includes articles that will serve as food for rats, more or less damage is to be expected, especially in older ships. Occasionally minor damage is done the vessel by rats in their attempt to reach food or to provide refuges for themselves.

The intrusion of rats can best be guarded against by using

⁴ W. C. Hobdy, *The Rat and Its Relation to Public Health*, Treasury Department, Public Health and Marine Hospital Service (1910)

floating fenders, rat funnels on all lines running from the ship to the wharf, raising of gangplanks when not in use, and by careful inspection of cargo before loading. In spite of such precautions it is practically impossible to exclude them completely. Once aboard ship they and most other vermin multiply. It then becomes necessary to fumigate the vessel, using sulphur dioxide, cyanide gas, or other chemicals, in an effort to rid the ship of the unwelcome visitors. Between fumigations the damage done by vermin is sometimes minimized by providing food and water, by poisoning or by stowing attractive and valuable cargo in vermin proof compartments. The holds, storeroom, and galley should be kept as clean as possible. Animal and vegetable refuse, heat and moisture promote the development and activity of vermin of all types. If cleanliness and other deterrents do not stay the multiplication of vermin, fumigation must be resorted to, but the expenditures for this service and the delays necessitated by it can be reduced by exercising constant efforts in the direction mentioned.

Losses from pilferage may occur at the pier or during transit. It is probable, however, that the losses at sea are of no great consequence. All companies maintain watchmen at the piers for the purpose of protecting cargo from dishonest laborers and others who have an opportunity to take attractive articles of cargo. As an additional precaution, foremen of dock workers should be selected for their honesty, as well as for their ability to superintend the performance of the task at hand. Broken or weakened boxes and cases are a temptation to a longshoreman, and in some cases longshoremen have been suspected of deliberate mishandling of cargo in order to extricate the contents of boxes and other containers. A part of the contents of a damaged container may be removed without observation, the container closed and the detection of the loss delayed until the package is delivered. Foremen should be observant of all longshoremen, discourage pilfering, and severely punish offenders in order that detection may not be looked upon as a trifling matter by other employees. If guards, watchmen, foremen, and others in authority are united as a watchful group, pilferage losses at the piers may be controlled. The fact that such losses are covered by insurance against

pilferage should not be an excuse for failure to prevent theft. The charges for insurance are dependent upon the record of losses and must in the aggregate exceed such losses if the underwriters are to remain solvent. A concerted effort to reduce pilferage can be expected to eliminate excessive payments for insurance.

The foregoing discussion of stowage and cargo handling would be incomplete without mention of two factors that have a direct bearing upon the subject. These factors are (1) proper packing of goods by the shippers, and (2) the laws and rules of the government and the various insurance, underwriters and classification societies pertaining to stowage and handling of particular commodities.

Although proper packing does not afford complete protection against the types of loss and damage to cargo described earlier, many of them may be avoided by careful preparation of the shipments. Properly designed containers may be of sufficient strength to reduce chafing or crushing to a minimum. Frequently damage due to moisture is the result of inadequate packing. The use of waterproof containers or of moisture-proof wrapping is of great value in the prevention of damage by water or moisture in the holds of the ship. Likewise losses arising from careless handling and pilferage are often as much the fault of the shipper as of the steamship company. The transfer of cargo between ship and wharf involves danger to packages of almost every nature and it is reasonable to expect shippers to assume a share of the responsibility for the safe transfer of their goods. Careless and inadequate packing also encourages pilferage. Articles that are likely to appeal to longshoremen or others who may be in a position to pilfer should be so packed that they not only resist opening but also are difficult to restore to their original form if opened, in this way theft is reduced to a minimum and detection made easier.

Many maritime losses and disasters are traceable to neglect of the ship operator to place safety above profit. As a result most nations, the important classification societies, and the associations or boards of insurance underwriters have adopted laws and rules governing the stowage and transportation of general cargo.

and passengers and specifying types of cargo inherently dangerous or susceptible to damage. Whereas the laws of the various governments must be obeyed as laws of the land for the protection of life and property of citizens, the rules of the classification and underwriters' societies are enforced in order to protect the insurers from liability for preventable losses that are the result of overloading, unsafe cargo stowage, or careless handling of dangerous goods. Such articles as grain, acids, explosives, oils and chemicals are examples from a long list of commodities considered to be of a sufficiently dangerous character to require regulation.⁵ Detailed rules and laws govern the handling and transportation of these and many other commodities, and the failure to obey, subjects the ship operators to penalties at law or prevents the issuance of insurance policies without which it is impossible to proceed because the risk is greater than the insurance companies are able or willing to assume.

The laws and governmental regulations referred to are enforced by means of established inspection services. The regulations applicable to the safety of vessels, the transportation of passengers at sea, etc., are subject to enforcement by the Bureau of Navigation and Steamship Inspection. Those governing the transportation and loading of live stock are applied through inspectors of the Department of Agriculture. The regulations of the Interstate Commerce Commission, governing the transportation of explosives and other dangerous articles, which have been adopted by the coastwise lines, and which also indirectly affect the packing of such articles in the foreign trade in so far as they are transported to the ports of export by rail, are enforced through the Bureau of Explosives. The boards of underwriters regularly maintain agents or inspectors to supervise the loading of vessels and to survey damaged cargoes. The latter may supervise or inspect loading either in great detail or in a more general way, depending upon the necessities that arise in particular instances, but they are in a controlling position because of the importance of marine insurance.

⁵ For a detailed description see *Stowage of Ship Cargoes*, Bureau of Foreign and Domestic Commerce, Miscellaneous Series No. 92 (1920).

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CHAPTER XII

CHARTERING AND SHIP BROKERAGE¹

TRAFFIC conditions favorable to the operation of regular steamship lines do not always obtain, and even when the services of lines are available, shippers—particularly those having full cargoes of bulky commodities—often prefer to charter vessels. The fleets of many steamship lines, moreover, consist in part of chartered vessels.

TYPES OF CHARTERED SERVICES

Vessels are chartered most frequently for a trip or voyage to transport a full cargo. The charter may stipulate that the vessel shall proceed to a specified destination or to any one of a range of destinations. In the latter case the master, before sailing, may receive his instructions to proceed to a defined destination or he may be ordered to call at some port for orders. When shipping grain from the United States to Europe, for example, the destination of the cargo is not always known before the vessel sails. The grain may be sold while afloat, after which delivery orders will be transmitted to the master.

A vessel may be chartered for an agreed voyage by a shipper who as charterer is to provide a cargo consisting mainly of a certain commodity or commodities and is to be responsible for a charter rate based upon a full cargo, but who may also accept cargo for other shippers at a higher or lower rate of freight than that named in the charter party. The shipper in this case puts the vessel "on the berth" to fill available space not needed for his own cargo. He pays the agreed charter rate to the vessel owner and in turn receives freight rates from the shippers who avail themselves of the offer.

¹ Reproduced substantially as published in G. G. Huebner, *Ocean Steamship Traffic Management* (1920), Chap. iv, and E. R. Johnson, G. G. Huebner and G. L. Wilson, *Principles of Transportation* (1928), Chaps. xlvii and xlviii.

A vessel may be put on the berth by its owner either for a full cargo or for smaller shipments to fill space not already contracted for. So, also, may a vessel be put on the berth for large or small shipments of general cargo by a ship broker, general operator, or speculator who has chartered the vessel for this express purpose. The vessel in such case is not in the tramp service in the usual sense, but is being temporarily employed to carry general cargo in competition with regular lines or to provide a general cargo service to points not served by regular lines. The operator is engaging in a speculation and for that reason is most apt to undertake such a transaction when the rates of the regular lines are high due to a shortage of tonnage.

Steamship companies frequently secure vessels on time charters either to supplement their line vessels or to establish a line service by means of chartered vessels. To meet a temporary demand a line may charter a vessel for a single voyage on a trip charter, in which case the vessel is for the time being in the line service.

TYPES OF TRAMP OWNERS OR OPERATORS

The owner of a single vessel or of a small fleet of two or three vessels may do a profitable business. The master of a tramp vessel may be its owner or part owner. The owner who leases his vessel or vessels on charter makes use of the services of ship brokers who are found at all ocean ports of importance throughout the world.

Small or large operators may lease vessels upon time charters, and many recharter the vessels on trip charters, i. e., for a tramp service in the usual sense, or place the vessels on the berth for full or part cargoes, or recharter them on time charters at higher rates.

Similar to operators of this kind are the large concerns which in England are known as managing owners, through whom fleets ranging from half a dozen to more than a hundred vessels are managed from one office. Some of the vessels may be owned by the concern, while others are owned by other vessel owners who turn them over to the managing owner for operation on the basis of a percentage of the profits.

Still another variation in type of tramp owner or operator is

the general steamship operator or steamship agent, whose operations are not confined to any one branch of shipping. Many of them are large concerns which act as steamship agents for regular line companies, organize and operate one or more lines of vessels which they own or charter, do a general ship brokerage business, act as ocean freight forwarders, handle marine insurance, hold the license of a custom-house broker and manage fleets of tramp vessels. The same concerns in some instances operate as export and import commission houses or merchants. These general steamship operators may lease their own vessels under any of the various forms of charter parties referred to below, if that should be more profitable than to operate them in the line service, or may charter vessels from other owners for operation either in the line or tramp service as the occasion may warrant.

Before chartering vessels under time charters, a general steamship operator at times makes time contracts with large shippers of sugar or other staple commodities, so that he may be assured of a portion of the cargoes needed for the chartered vessels. This is his method of limiting his risks, of protecting his profits, or "hedging" his chartering transactions.

A ship broker engaged primarily in the ship brokerage business may also at times become a tramp operator. He may be the owner of one or more vessels and use his brokerage organization and his knowledge of shipping requirements in their efficient operation. He may also charter a vessel on his own account with a view to operating or rechartering it at a profit over and above the charter rate paid to its owner.

There are, moreover, the large shippers who both own vessels and charter others mainly for use in their own business. Their prime purpose in owning or chartering vessels is to provide themselves with transportation. They may operate a line service or dispatch their vessels on an irregular schedule, loading them mainly with their own cargoes, subletting unused space to other shippers, and seeking available cargoes on return trips.

SERVICES RENDERED BY SHIP BROKERS

Vessels are usually chartered through ship brokers. Small owners or operators depend upon brokers to find charterers for their vessels, to handle their business affairs ashore, and depend

largely upon them for advice as to how the voyage of their vessels should be planned. Larger tramp operators, managing owners and general steamship companies with extensive business organizations of their own and with expert chartering managers are less dependent upon outside ship brokers in planning voyages, but they, too, obtain advice from them and frequently carry out their chartering transactions through the medium of ship brokers.

The main work of ship brokers is to find charterers for vessels and vessels for charterers. The owners or operators of tramp vessels seeking cargoes are served by ship brokers who "cover the market" daily, i. e., they keep in touch with shippers who are likely to become charterers. If the desired full cargoes are not available at the port in which a particular ship broker is located and where the vessel has arrived or is about to arrive, he may be able to locate a charterer elsewhere through a ship broker or agent at another port. Instead of chartering the vessel to a shipper on a trip charter, the broker may be able to charter it on satisfactory terms to a general steamship operator, a regular steamship line, an industrial concern or large shipper, or to a small or large tramp operator on a time or perhaps a trip charter. Having arranged the chartering transaction to the satisfaction of owner and charterer the ship broker sees to the preparation of the charter party and its execution.

Ship brokers sometimes are important factors in the loading, discharging, and operation of chartered vessels. Their services in this connection depend upon the terms of the charter party as to whether loading and discharging or either of these services is to be performed by the vessel owner. When attending to the loading or discharging of a vessel for the owner, the ship broker in effect becomes what in Great Britain is known as a "loading broker." This term is not in general use in the United States, but the same work is performed by ship brokers who make the necessary arrangements for the vessel owners. Charter parties sometimes specify that the vessel is "to be consigned at port of discharge to owners or their agents, by whom the steamer is to be reported at the custom house." The owner in this case needs to be represented on the spot, his agent frequently being a ship broker to whom the vessel is consigned. The broker after con-

sulting the principal cargo owners, arranges with the port authorities for the dock at which the vessel shall discharge, and on arrival of the vessel sees that the requirements of the custom-house are duly fulfilled. If any freight payment is due at destination, he will attend to its collection, he will provide for the vessel's disbursements, and after deducting his own charges, remit the balance to the owners.²

Should it be decided by the owner or operator to put a vessel on the berth a ship broker may be engaged to provide cargo and handle the transaction. The broker, who in effect becomes a steamship agent, may advertise the voyage, and send notices to shippers who might ship in the vessel, or he may personally solicit cargoes from shippers. The broker makes the necessary docking arrangements, books freight at such rates as the market warrants, arranges for the receipt and loading of the cargoes, signs bills of lading for the owners or master, collects the freight if it is to be prepaid, pays the vessel's disbursements at the port, makes out the ship's manifest and secures the clearance papers at the custom-house, deducts his own expenses and charges, and remits the balance to the owners.³

Not all ship brokers are equipped to place a tramp vessel on the berth. Many of them, however, are steamship agents as well as ship brokers and possess a business organization suitable not only for chartering vessels but also for loading, discharging, and operating. As has been stated, ship brokers sometimes charter vessels on their own account and put them on the berth for cargo. They then step outside the business of ship brokerage.

Ship brokers are also engaged in the selling of vessels. As in a chartering transaction they serve as a medium through which the owner and purchaser get together. When satisfactory selling terms have been agreed upon, the ship broker executes a form of contract, and when title passes he executes the necessary bill of sale. He also arranges for the transfer of the vessel to its new owner, which in the United States necessitates obtaining a consular bill of health, an inventory of supplies on board, and a certificate of registry. In England some ship brokers are known as "brokers for sale of ships" to distinguish

² Douglas Owen, *Ocean Trade and Shipping* (1914), p. 89.

³ *Ibid.*, p. 90.

them from "chartering brokers," and "loading brokers" ⁴ This terminology is not in general use in the United States, and ship brokers here do not confine themselves to one function only All of them are ready to charter or sell the vessels of shipowners, but some of them are not organized to act as loading brokers

The business of marine insurance ⁵ is so closely connected with ocean shipping that ship brokers may act also as marine insurance brokers so as to be in a position to attend to the insurance of vessels, freight, and cargoes when authorized to do so They may likewise hold the license of a custom-house broker

BUSINESS ORGANIZATION OF SHIP BROKER

The ship brokerage business is so organized and the nature of the business is such that the comparatively small staff of a broker's office is able to transact a business of large volume and almost world wide scope The business organization shown in the accompanying Form 3 may be regarded as that of a typical large American ship broker There are many smaller ship brokerage concerns with a simpler organization, in fact, a single individual may conduct a ship brokerage business, his office facilities consisting of desk room in some conveniently located business office

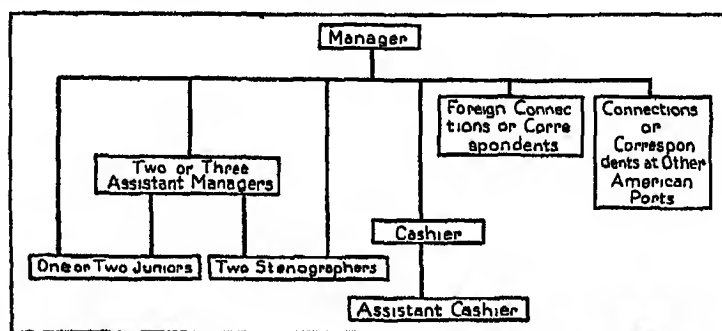
In the typical organization of a large ship broker there is a manager to supervise the work of the staff, to establish connections with ship brokers at foreign ports and at other ports in the United States, to decide matters of importance in connection with charter forms and sales contracts, to keep in touch with vessel owners and prospective charterers, to plan operations in case he decides to charter a vessel on his own account, and generally to determine the business policies to be pursued In the large ship brokerage house, there are two or three assistant managers, whose main work consists in covering the market daily They endeavor to keep in almost constant touch with the large shippers and other business concerns likely to be in the market to charter vessels, and in case a vessel is put on the berth, they solicit freight for it As charter rates are largely determined

⁴ Thomas E Scrutton and F D Mackinnon, *The Contract of Affreightment as Expressed in Charter Parties and Bills of Lading*

⁵ Chap xvi

by bargaining and the sums involved are large, the broker needs to have a wide knowledge of charter rates, good business sense, and the ability to approach men easily and to negotiate successfully with charterers. The variations in the provisions of charters are so wide and yet so important to both owner and charterer that brokers need to possess expert knowledge of charter forms as well as types of vessels and the essential particulars of the vessels for which charterers are sought.

Junior employees handle office detail work in connection with the preparation of charter parties, sales contracts and bills of sale, maintaining the office files, performing custom-house work,



FORM 3 TYPICAL BUSINESS ORGANIZATION OF A LARGE SHIP BROKER

and other activities engaged in by the brokerage house. A cashier and assistant cashier handle the bookkeeping and financial work.

This is a typical office staff for conducting a general ship brokerage business, whether through a large ship broker engaged exclusively in this business or through the chartering department of a steamship agent or general steamship operator. The ship broker may, however, have an additional organization for loading, discharging, and operating vessels. Such a staff is not necessarily included in the business organization of a ship broker. If the ship broker is equipped to put vessels on the berth for cargo he virtually becomes a steamship agent and has an organization approximating that of a steamship line.

Aside from this office organization each ship broker has connections or correspondents at a large number of American and

foreign ports, and he may have branch offices at certain ports. These connections or correspondents usually are themselves ship brokers, so that the ship brokerage business throughout the commercial world constitutes a closely connected business organization. The ship brokers of the world together "make a complicated web that reaches to all cities of commercial importance. The whole is so bound together by telegraph and cable that, like a spider's web, if touched by anything of importance at any point the whole structure vibrates with the news."⁶ It is this practice of establishing connections at many ports that enables the individual ship brokerage house to conduct an extensive business with a small office staff. The main expense of a ship broker in a chartering transaction in many instances is the charge for the extensive use of the telegraph and cable.

Ship brokers frequently are members of associations or exchanges, such as the New York Produce Exchange, which has adopted and approved a grain charter party, and approved berth terms contracts which are entered into, subject to the rules of the Exchange, and with the agreement that disputes arising at the port of loading shall be subject to arbitration as provided in those rules. The rules of the Exchange regulating the steamship business also standardize the practice of the port with respect to lay days, demurrage, and the notification of readiness, and the practice as to various other matters provided for in charter parties. The Exchange also affords facilities for quoting grain charter rates, for chartering vessels, engaging space, and contracting marine insurance.

Ship brokers may be members of maritime exchanges. The Philadelphia Maritime Exchange, for example, keeps records of charter parties and the movement of vessels, it has reporting stations with agents, collects current shipping news and shipping statistics, and provides facilities for the arbitration of shipping disputes. It has standardized the grain charter party and adopted local rules governing vessel demurrage, loading, and discharging, and the receipt and delivery of various cargoes.

⁶ J. Russell Smith, *Organization of Ocean Commerce*, p. 11.

SHIP BROKERAGE CHARGES AND PROFITS

The usual compensation of a ship broker for chartering a vessel on a voyage charter is a commission in the form of a percentage on the gross amount of freight, dead freight, and the demurrage provided for in the charter. Dead freight is the difference between the charter rate per unit of cargo multiplied by the tons of cargo called for in the charter, and the charter rate multiplied by the tons of actual cargo on board, which may be less than a full cargo. Demurrage is the amount paid by the charterer in case loading is not completed within a specified number of days after the vessel is ready to receive cargo or does not proceed at the rate of an agreed number of tons per day. The commission is paid by the vessel owner or operator.

When a vessel is put on the berth for its owner or operator by a ship broker, his commission is likewise a percentage of the freight. Under a time charter he receives from the owner or operator a percentage of the gross freight or hire, provided for in the charter party. If he sells the vessel he receives a percentage of the price paid for the vessel.

The broker's commission for chartering vessels or putting them on the berth varies. It has in recent years ranged from as low as one and one quarter per cent to as high as 5 per cent, depending upon the size of the vessel, the nature of the services required by the owner, the custom of the port, and other contingencies. The printed charter forms do not always disclose the actual rate of commission, old forms may be used in which 5 per cent commission is specified, although the understanding is that the broker shall receive a smaller commission.

Some charter parties provide that in addition to the commission paid to the broker he shall also receive the "customary freight brokerage." This usually refers to an agreed or customary amount over and above his commission for attending to the ship's business at the port of loading. As in case of the broker's commission, the presence of this clause in the printed form is not always evidence that the broker in every case receives "the customary freight brokerage."

When a ship broker provides vessel or cargo owners with marine insurance he is acting as a marine insurance broker and

obtains a commission from the insurance company. When he acts in the capacity of a custom-house broker he receives the customary custom-house brokerage fees. Should he charter a vessel on his own account, either to recharter it at a higher rate or to put it on the berth, he aims to make a business profit on the venture, for in such case he becomes a vessel operator. If he is a vessel owner as well as a ship broker the revenues derived from his own vessels likewise depend upon whether he can charter his vessels, put them on the berth, or otherwise operate them profitably.

OCEAN CHARTER PARTIES

The basic document governing charter services is the charter party. It is imperative that vessel owners or operators, charterers, and ship brokers familiarize themselves with the general forms or types commonly used in ocean shipping, and also with any special or unusual clauses that may be contained in the charters with which they are directly concerned. Two general types of charters are used in ocean shipping as conducted by private concerns—time, and trip or voyage charters—but there are several general forms of commercial voyage charters, and each general form is subject to many variations.

Time charters are to be distinguished from voyage charters in that they extend throughout an agreed period of time or specified number of voyages, while voyage charters cover a single voyage. During normal shipping periods, time charters are requested mainly by shipping firms having large quantities of cargo for shipment over extended periods and by steamship lines. The latter sometimes charter vessels on time charters to supplement their regular fleet when traffic has outgrown the vessels owned by them, or to serve as a temporary expedient while additional vessels are being constructed or purchased. They may also enter into time charter arrangements to carry freight contracted in advance, and there have been instances of lines, particularly newly organized lines, that have depended mainly or entirely upon time-chartered vessels. Tramp operators may also at times supplement their fleets by means of time charters. During abnormal periods, however, when wide fluctuations in ocean freight rates are anticipated, time charters have been utilized for specu-

lative purposes During the World War period, especially during its early stages, ocean vessels were chartered speculatively on time charters by individuals or concerns whose intention was not to operate them, but to recharter or sublet them at higher charter rates when the demand for tonnage became acute

Voyage charters are at times entered into by steamship lines, but their principal use is in connection with the shipment of large lots of heavy or bulky commodities They are the mainstay of the ocean tramp service Shippers having vessel-load quantities of cargo, but not sufficient tonnage to warrant the purchase of vessels or the negotiation of time charters, usually have the option of either shipping via regular lines or chartering vessels for single voyages Those having less than a complete cargo may also charter a vessel on a voyage charter and supplement their own shipments by putting the vessel on the berth for additional cargo Occasionally a vessel is chartered for the express purpose of putting it on the berth for miscellaneous quantities of cargo that different shippers may wish to have transported, and the owners of tramp vessels may themselves engage in such a service at times, but the tramp service is mainly conducted on the basis of voyage charters contracted to shippers of full loads of cargo

TIME CHARTER PARTIES

Commercial time charters as ordinarily utilized in ocean shipping have not been standardized, and special clauses may be inserted in the customary forms at the time of their negotiation Clauses covering certain matters of importance to owner and charterer are usually found in time charters, although their exact content varies in different forms The principal features of commercial time charters may briefly be summarized as follows

- 1 The owner is required to give warranties as to the vessel's tonnage, nominal horse-power, space and dead-weight capacity, inspection of hull and engines, its classification rating, its fit condition on delivery and its maintenance in a seaworthy condition, a full complement of officers and crew, and in some instances also its speed, fuel capacity, and fuel consumption Some of these warranties are only approximate but wide deviations are not lawfully permissible

- 2 The nature of the cargoes to be transported in the vessel

is defined either specifically or in more general terms permitting the shipment of general merchandise and perhaps of certain named commodities and also passengers

3 Trading limits are usually set by specifying the use of the vessel in lawful trades between safe ports in a specified range of trades, and certain ports or trades may be excluded

4 The time or duration of the charter is of course stated in the charter, or the number of voyages in case such is the agreement

5 The payment of the agreed charter rate or hire is fully provided for in time charter parties. The usual agreement in case of cargo vessels is that a fixed amount per dead-weight ton per calendar month is to be paid, but when a passenger vessel is operated on a time charter the usual basis is its gross- or net-register tonnage, and some time charters provide for the payment of a lump sum. The time or times of payment and the mode of payment are also as a rule definitely specified in present-day time charters. Provision is usually made for the discontinuing of payments when loss of time exceeding an agreed number of hours is caused by fire, stranding, breakdown of engines, deficiency of stores or men. For additional protection the owner is given a lien on the cargo for all freights and amounts due him, and the charterer is given a lien on the vessel for amounts paid in advance and not earned.

6 Commercial time charters usually provide for a division of expenses between owner and charterer. Although the charterer pays an agreed hire for the use of the vessel he is also as a rule required to pay all fuel expenses, loading and unloading charges, and other port charges and consular fees, except those incident to the officers or crew, and also pilotage charges, agencies, commissions, and other charges not specifically imposed upon the owner by the terms of the charter.

It is well to read time charters carefully with respect to port charges and pilotage because they usually define the conditions under which the charterer is relieved from payment when the vessel puts into a port other than the one to which the vessel is bound, due to reasons for which the vessel is responsible. If dunnage in addition to that found on board is required, the charterer is also required to provide it or bear the expense incurred,

and when passengers are carried he is required to pay victualing costs, usually at agreed amounts per day for each passenger. The owner on his part is required to pay the salaries and wages of the officers and crew and consular fees connected with them, all bills for ship's stores and crew supplies, vessel insurance premiums, and maintenance costs. Still other clauses usually specify that the owner shall pay the charter commission to which the ship broker who effected the charter is entitled, and also perhaps an "address commission" to the charterer in case he advances funds beyond his required monthly payments and attends to the ship's business at ports.

7 A reading of any commercial time charter party will disclose many other provisions, some of which are of very material importance. Some of the more important clauses usually included are those variously defining the duties of the master to the charterer and the owner respectively, the signing of bills of lading by the master, the right to sublet the vessel, the right of the charterer to appoint a supercargo, the right of the charterer to cancel the charter in case the vessel is not delivered by the owner within an agreed period of time, the redelivery of the vessel to the owner, the obligation of the owner to place the "whole reach" of the vessel's holds, deck, and customary places of loading and accommodation at the charterer's disposal, the docking of the vessel to be bottom-cleaned and painted, the provision by the owner of customary ship's machinery for loading and unloading, the mutual division of salvage, the payment of penalties in case of nonperformance of contract, the laws and rules that determine liability in case of loss and damage of cargo, and the arbitration of any disputes that may arise between owner and charterer. Charterers sometimes insist upon a special "legislation clause" stipulating that charterers shall have "the privilege of canceling this charter at a United States port north of Hatteras at any time legislation may be enforced differentiating against foreign tonnage in United States trade."

During the World War period, the United States Government adopted various standardized forms of time charters that did not conform to ordinary commercial practice. It took over many privately owned vessels on "requisition charters," and then re-chartered them on the basis of government time charters differ-

ing in many respects from the commercial charters customarily used in private international shipping. Many of the requisitioned vessels were rechartered to their owners or their agents for operation in accordance with the terms of these special time charters.

Different forms of government time charters were adopted for special types of requisitioned vessels and to meet special conditions. The Government, moreover, reserved the right to recall requisitioned vessels and operate them according to the terms of its "bare-boat" charter form. Such a charter requires the owner to outfit and equip his vessel and put it into seaworthy condition, the charterer (in this case the Government) thereafter undertaking to operate, man, victual, and supply the vessel at his expense, to pay all port charges, pilotage charges and other expenses incurred in its use and operation, and to assume all risks.

VOYAGE CHARTER PARTIES

Voyage or trip charters, which differ basically from time charters in that they provide for the use of a vessel on a single voyage instead of during a period of time, contain many provisions similar or differing in detail from those contained in time charters, and there is no uniformity in the phraseology of such provisions in different voyage charters. There are those that contain clauses in which the owner describes and gives warranties concerning his vessel, others that specify definite ports or a range of ports of shipment and discharge, that variously define the kinds of cargo that may be shipped, either specifically or by setting more general limits permitting the shipment of any "lawful merchandise", that require the master to sign bills of lading, clauses which provide for cancellation, arbitration, etc., and clauses that refer to the liability statutes and rules that shall apply in case of loss or damage of cargo. Some of these voyage charter clauses must necessarily vary somewhat from similar provisions included in time charters due to the fundamental differences between making an agreed voyage and operating a vessel during a period of time, sometimes extending over many months. For the same reason, some of the miscellaneous time charter clauses referred to above need not be included in voyage charters.

It is advisable, perhaps, to note only the outstanding and more important differences between time and voyage charters. No attempt will be made to discuss each of the almost endless variations in the conditions stipulated in the voyage charters utilized in ocean shipping. A more practicable plan is to caution the reader that every voyage charter is a specific contract, and to divide the charters into three general groups: (1) the gross form voyage charter, (2) the net form voyage charter, and (3) modified gross or net voyage charters.

The charter rate or freight paid to the vessel owner under a voyage charter is usually based not upon the vessel's dead weight, or gross-register tonnage, but upon the amount of cargo carried, at agreed rates per quarter of grain, ton of cargo, or other defined cargo units. Voyage charter rates based upon some form of vessel tonnage are exceptional, but there are instances of voyage charters that provide for the payment of a lump sum.

This basing of voyage charter rates upon the amount of cargo carried, and the very fact that the vessel owner agrees to complete a voyage, make it necessary to include provisions not essential in a time charter. The charterer usually agrees to furnish a full and complete cargo, to have the vessel proceed to a discharging berth where she can always float with safety, or failing which, that delivery of cargo will be accepted at the nearest point where this condition of safety can be fully met, and that the owner shall have a lien on the cargo for "all freight, dead freight and demurrage and all and every sum or sums of money which may be due the steamer under this charter," the term "dead freight" referring to the difference between the amount due the vessel when the charter rate is applied to a full and complete cargo and a smaller amount based upon a cargo that is not full and complete. A customary provision is contained in the "cesser clause," which usually provides that the charterer's liability ends when the cargo is on board and the bills of lading are signed, the ship thereafter agreeing to have recourse to its lien on the cargo, but this has been interpreted to mean that the charterer is relieved only when the cargo lien offers full protection to the vessel owner.

It has also been found necessary to insert clauses in voyage charters designed to speed up the loading and discharging of cargo, and to avoid misunderstandings concerning receipt and delivery of cargo. Voyage charters, in their "lay-day" clauses, usually specify the number of days allowed for loading cargo and sometimes also for discharging, or the number of tons per day to be loaded or unloaded. In case the vessel is detained by failure of the charterer or his agent to deliver or receive cargo, or actually to load or unload cargo in case the voyage charter so provides, within the number of lay days agreed upon, the charterer agrees to pay "vessel demurrage." When, on the contrary, the agreed lay days are not needed, the vessel owner under some voyage charters agrees to pay "dispatch money" at fixed rates for each lay day not used. Explicit clauses frequently provide where cargo shall be delivered by the charterer and where it shall be received at destination. Provisions of this kind variously state that it shall be within reach of ship's tackles and that lighterage and extra lighterage costs shall be paid by the charterer, or that named wharves shall be used for delivery and receipt of cargo, or other arrangements may be provided for.

The fundamental difference between the general classes of voyage charters referred to above is found in the nature of the services to be performed by the vessel owner for the charter rates paid by the charterer. The distinctive features of the gross form voyage charter is that the charter rate covers the entire transportation service, including loading at the shipping point, discharging at destination, and port charges. It is therefore the simplest form of voyage charter and one often preferred by shippers and consignees who have no special loading and unloading facilities or arrangements. It specifies the delivery and acceptance of cargo by shipper and consignee, usually alongside the ship, but within these limits the gross form charter rate covers port charges and services as well as operating costs incurred by the vessel in sailing from shipping point to destination. Contingent costs such as vessel demurrage, lighterage, and extra lighterage in case of failure to deliver or receive cargo as agreed upon, or extra expense incurred by reason of working the vessel at ports on Sundays or holidays are variously provided.

for in gross form charters and are in addition to the charter rate

The charter rate paid by the charterer under a net form voyage charter party covers only the actual transportation of the cargo from port to port. The charterer, in addition to paying the charter rate, is required to assume the cost of loading his cargo aboard the vessel and of discharging it at the destination port. The agreement may be that these services actually will be performed by the charterers, or that "charterers are to load, stow and trim cargo at their own expense, under the direction of the master," but that "they shall not be responsible for improper stowage," or that the service will be performed by the ship, but at the charterer's expense. The clauses covering loading and unloading have not been standardized in all net form voyage charters. The charterer is also required to pay port charges, customs and harbor dues and wharfage costs at both loading and discharging ports.

Net form voyage charters are sometimes preferred by charterers, especially by those regularly engaged in the foreign trade. Exporting or importing firms may have been able to make favorable arrangements of their own for loading and discharging cargoes. They may indeed own or operate wharves, and they may possess efficient port organizations and excellent freight-handling facilities.

It is especially desirable that charterers, owners, and ship brokers read carefully any modified gross and net form charter parties in which they may become interested, because the clauses defining the services to be performed by the owner under such charters conform neither to those of gross form nor to those of net form charters. They are modifications of the one or the other, some of them being mainly of the gross form and others conforming mainly to the net form, but with modifications concerning the amount of services covered by the charter rate.

There are so many different general types and special forms of voyage charters and the addition or substitution of special clauses occurs so frequently, that no general account such as this can obviate the necessity of examining each charter carefully whenever a particular chartering transaction is undertaken.

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CHAPTER XIII

OCEAN FREIGHT FORWARDING AND FREIGHT BROKERAGE

EARLIER chapters have pointed out the relations of ocean carriers and shippers with ocean freight brokers and forwarders. Ocean freight forwarding refers to the actual forwarding and handling of shipments by forwarders acting as agents for ocean shippers, while ocean freight brokerage refers to the booking of cargoes or the engaging of freight by freight brokers, but in practice the two services are frequently performed by the same concern. Although there are many freight brokers who do not perform forwarding services, the many ocean freight forwarders or contractors found at all large ocean ports and at some interior points perform a forwarding and also a freight brokerage business.

NATURE OF SERVICES PERFORMED

As freight brokers the ocean freight forwarders assist the steamship companies in securing freight. Sometimes ocean carriers, when there is no difficulty in obtaining cargoes, prefer to book cargoes without the medium of brokers, thereby saving the usual brokerage charge, but in normal times, when cargoes are not readily at hand, many steamship lines find the services of freight brokers helpful. The economic value of the ocean freight brokerage business does not, however, end with the securing of freight for the steamship lines. Many manufacturers and shippers, particularly those located in the interior, depend upon ocean freight forwarders and brokers to keep them fully posted on ocean freights and services and to engage their cargo space for them. The difficulty of obtaining current ocean freight rates, subject as they are to sudden fluctuations, and of engaging space, was considered of sufficient value by many shippers during the World War conditions to induce them to pay the brokerage fee which some of the steamship lines for the time being refused to

pay, or would pay only to such forwarders as agreed to become members of a specified freight brokers' association. Importers also find ocean freight forwarders and brokers a convenient source of information regarding ocean freights on imported cargoes.

When acting as ocean freight forwarders these concerns, serving as agents of shippers who prefer not to handle their export shipments at the ports of export and beyond, take entire charge of an export shipment either from point of origin to final destination or throughout any part of the voyage or trip. In doing so they act as port representatives who receive the shipments consigned to them, make the necessary arrangements with rail and ocean carriers, have the shipment carted or lightered, see that it gets aboard the vessel, attend to the preparation of the necessary shipping documents and to any trade formalities that may arise at the ports, pay freight and insurance premiums if so instructed, clear cargoes through the custom house, and generally attend to the transportation and shipping services incident to an export or import transaction. Whenever it becomes necessary to store freight after arrival at the port they make arrangements for storage. They frequently not only act as representatives or agents at the port of export, but also provide a through freight service including delivery at inland destinations in foreign countries. A like kind of forwarding service is performed in the import trade.

Ocean freight forwarders also perform a service to the shipper when they quote through freight rates to a foreign destination. They stand ready to quote a freight charge that will carry the export shipment through to interior destinations in foreign countries. Interior destinations to which they will not quote through rates are exceptional.

Forwarders are, moreover, in a position to offer reduced rates on small packages which, if shipped directly by the shipper in the ocean freight service, might have to pay the relatively high minimum freight charge provided for in the bills of lading of many steamship companies. By combining the small packages of a number of shippers, freight forwarders may quote rates on package freight that result in a saving to the individual shipper and at the same time yield a profit to the forwarder. Ocean

freight forwarders when handling package freight are performing an international express service

The regular domestic express companies also make provision for overseas express shipments The uniform express receipt of the Railway Express Agency, Inc, contains various "special additional provisions as to shipments forwarded by vessel from the United States to places in foreign countries" Beyond the port of export, foreign shipments accepted at its express office are subject to the conditions of the ocean carriers' bills of lading and the express company is not liable for loss, damage or delay over ocean routes and their foreign connections occasioned by the "acts, loadings, laws, regulations and customs of oversea and foreign carriers, custodians and governments, their employees and agents" The express or forwarding service outside of the boundaries of the United States, in the overseas trade, is performed in conjunction with the American Express Company

The difference between carload and less-than-carload railroad rates and the privilege of shipping carload lots of mixed freight also enable freight forwarders at times to forward export freight from interior points to the port of export at rates that are a saving to the individual shippers while yielding a profit to the forwarders Some of the ocean freight forwarders have established offices at interior points, both to reach interior exporters more directly, and to consolidate shipments into carload lots Interior forwarders that consolidate or bunch less-than-carload shipments for export are engaged in a railroad forwarding business as well as in the usual business of receiving shipments at the ports and forwarding them to foreign destinations

Ocean freight forwarders render a further service to shippers who may wish freight charges to be collected from the consignee at destination, although ocean carriers insist upon prepayment of freight An ocean freight forwarder may forward shipments on a collect basis, even though he is required to prepay the freight demanded by the steamship company, thus carrying the shipper until the foreign agent of the forwarder has collected the freight from the consignee at destination They also endeavor to handle to the best interests of the export shipper such goods as are refused by the consignee When instructed by the exporter they undertake to provide the marine insurance desired

by him, thereby relieving him of the trouble of obtaining insurance

Some forwarders give financial assistance to exporters in the United States and foreign consignees abroad. Shippers may arrange with their forwarder to advance the invoice price of their shipments, the forwarder then collecting from the consignee either through his foreign agent at destination or by means of drafts handled through the regular international exchange bankers or brokers. The financial work of the American Express Company which conducts a foreign express and forwarding business also includes the issue of travelers' checks, foreign money orders, and letters of credit, the transfer of funds by telegraph, and the operation of a "foreign postal remittance" service for the remittance of money to persons not located near a bank.

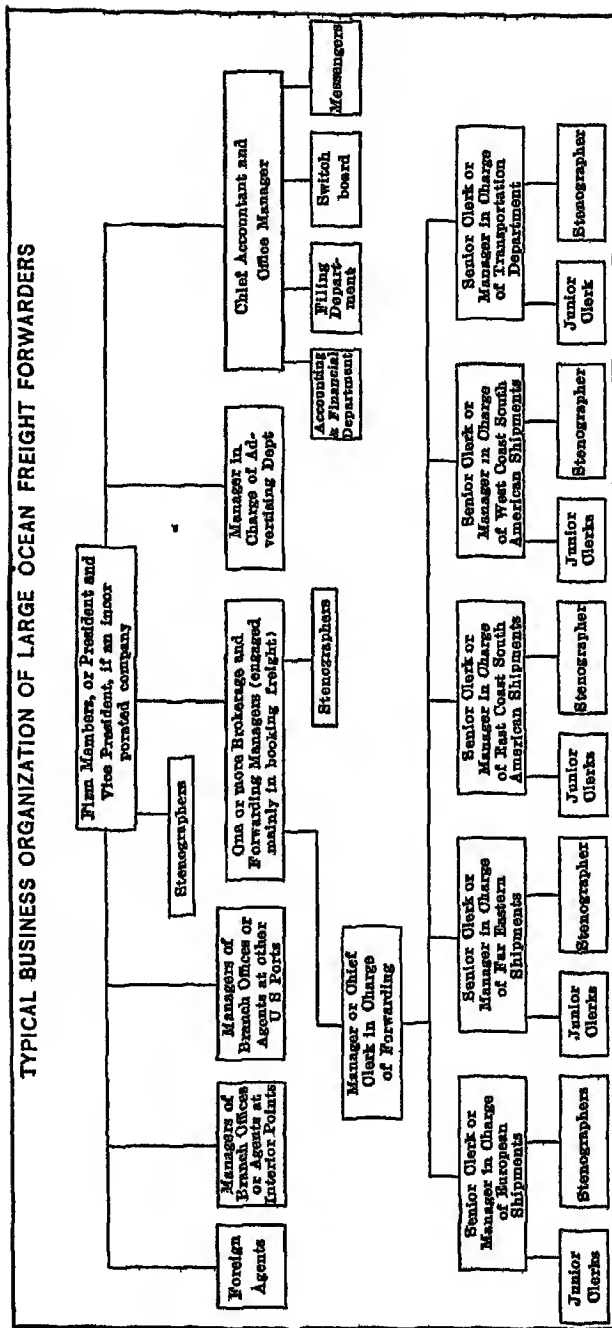
Some of the ocean freight forwarders are engaged in foreign trade, as distinct from shipping, and give trade information useful to their customers in buying or selling goods abroad. Some act as foreign purchasing or selling agents and have definitely entered the fields of distribution and warehousing.

BUSINESS ORGANIZATION OF OCEAN FREIGHT FORWARDERS

The business organization of ocean freight forwarding concerns is subject to so many variations that it is impossible to construct a single organization chart that conveys a comprehensive view or is in all respects typical. Form 4 shows, in general, how some of the larger concerns are organized. The large forwarding companies vary in organization with the volume of business handled, the extent to which they specialize in shipments to particular parts of the world, the kind of services offered and the differing views of its firm members or higher officers as to how its forces can be made most effective. There are also smaller forwarding concerns with less extensive organizations than that indicated in Form 4.

The main office of most of the ocean freight forwarders is located at a seaboard port, and the larger forwarders have agents or branch offices at other ports to facilitate the routing of inland freight through more than one port and to share in the freight originating at several ports of export. Forwarders may also have agents or branch offices at various interior points where export

TYPICAL BUSINESS ORGANIZATION OF LARGE OCEAN FREIGHT FORWARDERS



FORM 4 TYPICAL BUSINESS ORGANIZATION OF LARGE OCEAN FREIGHT FORWARDERS

freight originates. This enables them to get into closer touch with interior manufacturers and exporters and to consolidate less-than-carload lots of export freight. An ocean freight forwarder located at the seaboard may have an "overland department" at Chicago or other interior points to handle overland traffic routed through the ports of the Pacific coast. Some concerns, known as interior forwarders, have their main office at an interior point, and agents, representatives, or branch offices at ocean ports and at interior shipping points.

American ocean freight forwarders and express companies engaged in the international express or forwarding business handle most of their business through foreign concerns, but some have their own branch offices or agents at a limited number of the principal foreign cities. Most American forwarders enter into agreements with foreign freight forwarders or "spediteurs," and consign to the foreign agent all freight or express matter forwarded to the territory covered by such agent, who obligates himself to handle such consignments and also to ship through the American forwarder the freight and express matter that he dispatches to the United States, and that is not otherwise specifically consigned by the exporter. Each transaction has its waybill which gives instructions to the foreign agent who returns the waybill with a statement of his charges.

The ocean freight forwarding and foreign express businesses differ from the domestic express business in that no exclusive time contract to handle all shipments is entered into with steamship companies. Forwarders, like other shippers, route their consignments via the first available steamer. Such time contracts as have been entered into by express or forwarding and steamship companies are mainly in the coastwise and Great Lakes business, where the number of available steamship lines between two points is small, but the sailings of a particular line are frequent.

The main office of the typical large ocean freight forwarding organization shown in Form 4 is assumed to be located at a large port of export. The members of the firm, of whom there may be several, are largely occupied in keeping in touch with customers and in booking freight with steamship companies. Managers, reporting to the firm members, supervise the forwarding staff but are likewise engaged largely in booking cargoes. A

freight brokerage business is conducted along with the forwarding business. In some organizations, freight is booked directly either by the managers or by chief clerks of departments concerned with freight to particular parts of the world.

The forwarding staff of a large company is usually in charge of a manager or chief forwarding clerk, but no definite terminology has been developed. If large volumes of shipments are forwarded to various parts of the world, the work is in some instances subdivided among the staff geographically. Form 4 shows that the forwarding of shipments to four sections of the world is handled by separate groups of men, each group or department being in charge of a senior clerk who has from two to five junior clerks and one or two stenographers. In some organizations, the work is divided among departments, each in charge of a forwarding manager. In an organization of this kind the customer's shipments are split up geographically and handled by groups of clerks who specialize on forwarding cargoes to particular sections of the world.

In a large organization, there may be a transportation department to follow up cargoes and to see that delivery is made by lighter or truck on the days specified in the shipping permit obtained from the steamship companies. The department may consist of but one clerk or a senior and junior clerk to whom are given copies of the lighterage and trucking instructions issued by the men in charge of forwarding.

The staff may be organized either on geographical lines or on the basis of individual customers, all the forwarding work for a given shipper being turned over to a particular clerk. This is a convenience to the shipper in that he deals continually with the same individual clerk who becomes expert in the shipper's affairs. The plan does not, however, enable members of the staff to specialize in the varying shipping requirements of different foreign countries. Moreover, the advantages of having one clerk deal with an individual customer may be attained, at least in part, in an organization that is geographically subdivided by assigning clerks within the various territorial groups to large customers. The cargoes of an exporter shipping to different parts of the world are not in this case handled by the same clerk, but all of those destined to Europe may be handled by a particular man.

in the group of clerks or department assigned to European shipments, those destined to the Far East by a clerk in the Far Eastern group or department

An accounting staff handles the bookkeeping, auditing, and financial work in connection with the freight brokerage and forwarding operations. Besides keeping the necessary records, the department sends bills to the shippers whose freight is forwarded, handles foreign exchange drafts and pays the shipper in case the forwarder is financing his transactions, and settles the freight bills of the steamship companies, the bills of truckmen and of others with whom the forwarder has dealings.

There may also be an advertising department that sends, to customers and prospective customers, circulars containing information as to forwarding services, steamship sailings, and ocean freight, and that places advertisements in shipping and trade journals and other publications read by exporters and importers.

FREIGHT BROKERAGE AND FORWARDING CHARGES

The charge collected for booking cargo space is "brokerage," and is a percentage of the amount of the ocean freight bill. This is usually paid by the steamship companies because they have ordinarily depended in part upon freight brokers and forwarders to book cargoes for them. Brokerage is collected by the forwarder, whether or not the cargoes booked are actually forwarded by him. The general brokerage fee or charge most commonly obtained is one and one quarter per cent, but the amount varies and special brokerage fees are in effect at some ocean ports for particular commodities.

Forwarding charges are in some instances absorbed into the freight brokerage fee, but the practice at most ports is to collect additional charges from the shipper for whom freight is forwarded. These charges vary widely. There may for example be a charge per bill of lading of \$5.00 per carload and \$2.00 per less-than-carload shipments, but the bill of lading charge at various American ports varies from \$50 to \$5.00. These charges may also cover the work of preparing export declarations, consular invoices and other required export documents, but in some instances additional small charges are collected for preparing these documents, foreign consular fees may be collected sepa-

rately as a specific expense, and additional charges may be collected for preparing additional copies of the ocean bill of lading or consular invoice

The brokerage received by forwarders acting as freight brokers in engaging freight and the additional charges collected for forwarding services are in practice closely related. If no brokerage were received, the small charge for forwarding services would in many instances not be an adequate compensation. At times the forwarder may also receive revenues from other sources. Thus if the shipper arranges to have the forwarder pay the invoice price of his cargo, i. e., finance his trade transactions, collection or discount fees may be charged. When marine insurance is engaged by a forwarder for a shipper, the forwarder usually receives a commission from the insurance company or underwriter. When ocean freight forwarders act as marine insurance brokers or agents they receive compensation from the insurance company.

If the shipper requests the quotation of a through freight charge to an interior foreign destination on a consignment sufficiently large to be billed on a minimum steamship bill of lading without consolidation with other shipments, such through charge may or may not in a particular instance be somewhat higher than the actual freights paid to the carriers by the forwarder. The railroad rate to the American port of export can be definitely ascertained from available railroad tariffs and the ocean freight rate to the foreign port of entry can be obtained from the steamship company, but the actual inland freight charges beyond the port of entry to a particular inland destination are not always readily ascertainable until after delivery is made. If the through charge should prove to be higher than the actual rates paid by the forwarder, he makes a profit, but in other instances he may be a loser. Forwarders, when possible, use the actual foreign rate tariffs showing charges to interior foreign destinations or obtain advices from their foreign agents, and when such tariffs or advices are not at hand, they may refuse to quote a through rate.

When forwarding consignments are too small to be shipped without consolidation with other consignments because of the high minimum freights per ocean bill of lading charged by many steamship lines, the main profit of the forwarder may be derived from the difference between the forwarders' and the ocean car-

riers' freight charges The forwarder pays the steamship line for transporting a combined cargo including the small shipments of a number of shippers, and he in turn charges each individual shipper rates that are lower than the high minimum rate per bill of lading demanded by the steamship line, but sufficiently high to include a forwarding profit

Through rates on small packages or express goods are in some instances quoted on the basis of printed tariffs The published rates for different weights, stated in the foreign tariffs of one forwarding and express company, for example, apply from the port of export to various foreign destinations and are engaged in addition to the express rates from the interior point of origin in the United States to the port of export Valuation charges per \$100 are added to the express rates if the value of an express package exceeds \$50, and if insurance is desired, the marine, theft, and pilferage insurance charges stated in the tariffs are added It should be noted, however, that foreign express tariffs are not ironclad They may state specifically that "rates are subject to change without notice," and that "special reduced rates will be quoted on shipments weighing in excess of a specified weight "

COMPETITION IN FREIGHT FORWARDING BUSINESS

The ocean freight forwarding business has in recent years become increasingly competitive There are a large number of forwarders who compete with each other, and a number of ocean steamship lines and agents that also act as freight forwarders The railroads, moreover, are issuing through or export bills of lading from interior points to foreign destinations Large shippers are establishing direct agencies or branch offices at the larger ports, and many of the export commission houses or other trade agencies through whom exporters sell merchandise, when not dealing directly with their foreign customers, act as port representatives Trucking concerns may be engaged to transfer shipments at the ports, insurance brokers may be employed to insure ocean cargoes, and the services of custom house brokers may be secured to enter imports at the custom-house and to forward import cargoes to interior destinations The foreign package or express business, moreover, is affected by the international par-

cels post service which has been established to many countries by the post-office department through parcels post agreements, and somewhat also by the issue of parcels receipts by a number of steamship companies

Ocean freight forwarders, however, continue to do a large brokerage and forwarding business, these services being distinct. It is significant that many large interior shippers, instead of shipping on through railroad export bills of lading, choose to consign their export cargoes to an ocean freight forwarder so as to take advantage of favorable ocean-rate fluctuations and to share a possible saving in port transfer expenses, to obtain the promptest possible sailing, or to obtain some special service which the forwarder stands ready to perform

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CHAPTER XIV

THE PASSENGER SHIP SERVICES AND ORGANIZATION

THOUGH the transportation of passengers on the ocean is of less economic importance than the carriage of cargo, the passenger business is widely publicized, and the average reader has some knowledge of this branch of ocean shipping. Dealing as it does with the comfort and safety of persons instead of property, it is of greater general interest to the public. The desire for luxury and ample space in staterooms, lounges, and other public rooms aboard ship has contributed to the extensive publicity given ocean travel because the construction of the world's largest, fastest, and most palatial commercial vessels has been due to the demand for comfort, safety, and recreation in travel over all ocean routes.

The size and speed of passenger ships have placed an added responsibility upon marine architects and engineers. Every departure from accepted practice in hull and engine design is more or less experimental in nature. Technical improvements of many kinds in all types of ocean going vessels has been due, in a large measure, to the experience gained in the construction and operation of passenger liners. Thus, the exacting ocean voyager has been instrumental in bringing about innovations in marine architecture and engineering that are now applied to both passenger and cargo ships. The technical advancements of the past decade have been especially significant.

MODERN PASSENGER VESSELS SPEED, COMFORT, SAFETY

At the beginning of the century, speed was given great consideration in the construction of new vessels. The *Mauretania* and *Lusitania*¹ were perhaps the most celebrated of vessels built before 1912. In 1910, the former established a transatlantic record, crossing from New York to Queenstown in four days, ten

¹ Sunk by German submarine in May, 1915

hours, and forty-one minutes, which record remained unmatched for almost twenty years and represented the supreme effort of builders to increase the speed of ocean travel. Other vessels constructed in the years remaining before the outbreak of the World War in 1914 were not designed to attain the speed of the *Mauretania*, but several exceeded her in size. The safety factor became dominant after the *Titanic* disaster in April, 1912, and succeeding launchings brought forth a number of ships of immense proportions in which were incorporated the latest improvements to insure safe and luxurious ocean travel. Considerably larger than the *Aquitania* of the Cunard Line were the *Olympic* of the White Star Line and the Hamburg-American liners, *Imperator*, 1912, *Vaterland*, 1913, and *Bismark*, 1914.² At the close of the war, the three last named were acquired by Great Britain and the United States and rechristened respectively *Berengaria*, *Leviathan*,³ and *Majestic*. No attempt was made to eclipse the speed records of the *Mauretania*. Safety, comfort, and large passenger capacity were emphasized as more desirable and more profitable attributes than higher speeds. The *Majestic* and *Leviathan* are approximately the same in size, the dimensions of the *Majestic* are length 915 feet, five inches, beam of 100 feet, one inch, her gross tonnage exceeds 56,000. Passenger accommodations were originally provided for more than 3,000 persons, and when fully manned, the crew numbered about 1,200, but changes in the characteristics of North Atlantic travel have since forced a reduction in the passenger capacity. Elevators, swimming pools, gymnasiums, telephones and other innovations designed for the comfort of passengers were incorporated in these vessels by the builders. Spacious promenades, lounges, and other public rooms have given added freedom to patrons. Other facilities for the reception and dissemination of news aboard ship, provisions for tourists shops, barber and hairdressing shops, children's playrooms, and medical attention were other contributions to the rapid change that occurred during the 10-year period ending in 1914. Refinements in cold storage and refrigeration equipment, and in the widespread use of electricity for propulsion, cooking, communication, and

² Launched in 1914 but not completed until 1921.

³ Interned in the United States until our entrance into the War, there after used as a troop transport.

other purposes were less apparent to travelers, but they made possible pronounced improvements in service

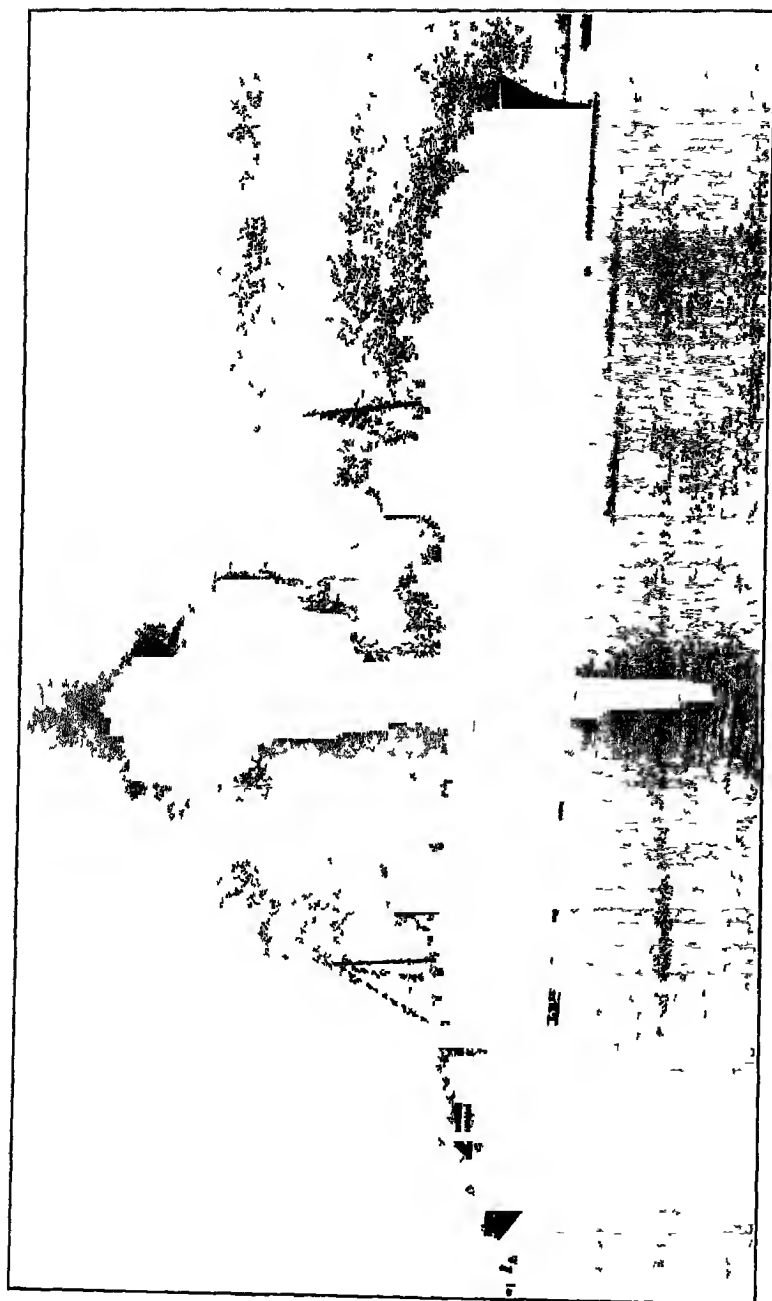
At the same time, vessels smaller in size but comparable in comforts were constructed for routes other than the north Atlantic. The importance of travel between the United States and the Orient, between Great Britain and the Far East, and Great Britain and Australia permitted the building of a number of ships with lengths up to 650 feet and gross tonnages in excess of 20,000. As a group, they were not the equal in speed of the larger vessels but the comfort and safety of passengers received the same careful attention in the design and construction of these vessels.

Although ocean travel has not been freed from the ever present perils of the sea, constant effort has been made to guard against marine disaster. The hulls of passenger vessels, small and large, are protected by transverse and longitudinal water tight bulkheads and double bottoms which divide the vessel into many individually buoyant compartments. Life boats, life preservers, rafts and other devices have been improved. Efficient lowering devices for life-boats to prevent capsizing and damage in launching help to safeguard the lives of passengers in cases of emergency. Progress has been made in the application of radio and self-propulsion to life-boats in an effort to increase the probability of rescue should it be necessary to abandon the ship. Numerous technical devices have simplified navigation to a surprising degree. By means of radio signals, it is now possible to determine the position of the modern passenger liner without celestial observation, the gyroscopic compass automatically maintains the vessel on her course without the attention of a helmsman, the sonic depth finder, by measuring the elapsed time required for the return from the ocean floor of a signal sent from the vessel, automatically gives a continuous reading of the depth of water under the keel when the vessel approaches the coast or the entrance to a harbor, and a new development in photography makes available a camera which is able to penetrate haze or fog for remarkable distances, thus extending the vision of those navigating the vessel and materially increasing safety. Development of fire-fighting and detection apparatus has kept pace with the improvement in other fields of activity for the pro

motion of safety For the detection of fire various methods are employed One system in common use consists of an electric circuit connecting all important enclosed spaces of the ship with the bridge The presence and position of fire is immediately indicated to the officers on watch, other adaptations of fire-fighting and detecting inventions release gas, water, or foam in the holds and other parts of the ship to quench fire at its source Trained crews are also maintained with specific fire stations and responsibilities for handling equipment, preserving order, and performing other duties that become imperative in case of fire Unfortunately, fire at sea remains uncontrolled in spite of precaution and the wide use of the most advanced technical appliances for prevention However, losses are largely confined to property Loss of life among passengers traveling in modern liners can be so greatly reduced by the proper equipment of vessels that there is no longer any justification for not making adequate provision for the safety of travelers Government legislation in many countries dictates the minimum safety requirements for all vessels Important steamship companies operating passenger vessels rarely fail to exceed this minimum and frequently expend large sums for equipment not required by law Vessel hulls, boilers and engines are subject to government inspection, and most ships are also inspected by Lloyds or other classification societies In the United States, the Federal Government contributes to the safety of sea travel by the operation of lighthouses, destruction of derelicts, maintenance of life-saving stations, regulation of wireless, and distribution of weather reports, nautical charts of many ocean and coastwise routes are issued at nominal cost *

Postwar construction of passenger vessels reflected a change of policy among shipbuilders The great size and tremendous cost of giant liners of the type of the *Majestic* and *Leviathan* made profitable operation difficult For several years few new vessels exceeded 35,000 tons The luxury, speed and comfort of the larger ships were maintained but no radical departures in design took place until the advent, in 1929, of the sister ships *Bremen* and *Europa* of the North German Lloyd Superior in speed to

* For discussion of administrative government and see Chap xxviii Government regulation, however, cannot prevent loss of life at sea One important steamship line lost two vessels at sea in 1934 with large sacrifice of life



S S "NORMANDIE" OF THE FRENCH LINE

any passenger liners yet built and embodying a number of technical advancements, the *Bremen* and *Europa* quickly erased existing speed records in each direction and attracted the attention of shipbuilders and operators. On these ships, prohibitive costs of constructing and operating vessels of high speed and great size were overcome, in part, by the principle of streamlining applied to the hull and superstructure, improvements in generation and application of power, and by the adoption of bulbous bows and other departures from accepted practice in hull designs. The quest for greater speed was renewed with the introduction of the *Bremen* and the *Europa*. At the same time, the desire to build the world's largest ship found expression in England and France where the keels of super-liners were laid by the Cunard and French lines. Each ship exceeds 1,000 feet in length with a gross tonnage of over 70,000. The French vessel, the *Normandie*, began service in 1935, but work on the Cunard liner, *Queen Mary*, was suspended for some time because of the economic crisis in Great Britain. Government aid has made possible resumption of the task, and it is expected that no further interruptions will interfere with the completion of the vessel in 1936. In an effort to create a new standard of travel to Italy and the Mediterranean, the Italian line placed in service two magnificent ships, the *Rex* and the *Conte di Savoia*, the latter is the only gyro-stabilized liner afloat, and the former erased the speed records of the *Bremen* and *Europa* by steaming from Gibraltar to Ambrose Lightship at an average speed of 28.96 knots. This record was, however, surpassed by the *Normandie* on its maiden voyage, her average speed being 29.64 knots per hour from Bishop's Rock, Southampton, to Ambrose Light, New York.

On other ocean routes, many vessels of recent construction have replaced older ships and extended the advantages of speed and comfort heretofore expected only on the North Atlantic.

CLASSIFICATION OF SERVICES VOLUME OF TRAFFIC

The freight and passenger services of the railroads are distinct from one another. This distinction is not so sharply drawn in the steamship business, because almost all passenger ships carry some freight. It is true that some vessels are designed to carry passengers, mail, and express, almost exclusively, but the majority have

considerable space for cargo. The largest and most luxurious of the vessels in operation between New York, England, and the continent of Europe do not depend upon cargo for any appreciable amount of revenue. They are representatives of the highest degree of specialization in passenger travel and have relatively small space for carrying freight. Vessels not included in this small group have cargo holds of larger capacity and freight revenue is of great importance. In contrast, are the services offered over other routes where passenger travel is less concentrated than upon the North Atlantic. The cargo holds are of a greater relative capacity and in some instances the accommodations for passengers become so small that the returns from them are incidental to the operation of the vessel as a carrier of general cargo freight.

The growth of passenger traffic was very rapid from 1880 to 1914. The number of Americans taking cabin passage abroad more than quadrupled, and the number of immigrants entering the United States increased threefold. Total passenger traffic inbound and outbound in 1914 reached 2,692,269 of whom 1,218,480 were immigrants. The continued increase in immigrant traffic in the decade 1901 to 1910 was an important factor leading to an unusual period of shipbuilding activity which reached its height in the years immediately preceding 1914. Cabin passengers, paying considerably more per passage, increased at a relatively greater rate and every indication pointed toward a continued growth in travel. The United States stood out as a land of opportunity for the immigrant, and our own citizens were rapidly developing an appreciation of the benefits and pleasures of overseas travel. The greatest increases naturally occurred on the North Atlantic route on which over 75 per cent of the passenger traffic to and from the United States is carried in a normal year. Construction and traffic development programs of many steamship companies, based upon the expectation that past increases would be maintained, had to be revised because of two unforeseen occurrences. The outbreak of the World War in 1914 paralyzed passenger transportation on the north Atlantic route for a number of years, and the restrictive immigration policy of the United States, beginning in 1917, placed permanent restrictions upon the admission of aliens to this country.

The new attitude of the government toward immigration was first expressed in the Act of 1917 and later in the Act of 1924 which amended the former law. The national origins clause of the act as amended, which became effective July 1, 1929, provides for a definite yearly quota of immigrants for any nation subject to the quota law, the quota of a given nation to be a number bearing the same ratio to 150,000 as the number of inhabitants in continental United States in 1920 having that national origin bears to the total inhabitants in the United States, the minimum in any case shall not be less than 100. Immigration from eastern and southern Europe is effectively controlled by the law because people from those countries did not emigrate in large numbers before 1890, when the 1920 census was taken, they had not assumed the numerical importance of immigrants from certain other nations notably Great Britain and Germany, thus reducing the number admissible under the law.

Immediately after the close of the war, travel increased sharply but it has not equaled prewar years in volume. Average yearly arrivals and departures rose above 1,500,000 for the ten years beginning in 1920. This is significant in view of the marked decline in immigrant traffic which averaged 449,550 during the same period as compared with 890,180 for each year from 1900 to 1914. The full effects of restrictive legislation were apparent for the first time after 1928, and in 1933 immigrant traffic amounted to only 23,068, the lowest in one hundred years, in 1934 it increased slightly to 29,470. However, those figures may be assumed to be somewhat below normal because many foreign residents who were willing to leave their homelands were without sufficient funds to defray the costs of the voyage. It is probable that the full quota of immigrants permitted by law, approximately 150,000, will be admitted when there is a restoration of normal business activity throughout the world.

The participation of the United States in the World War added to the desire for travel among Americans. In addition, the prosperous condition of our country made it possible for thousands of American citizens to visit the scenes of the recent conflict. Arrivals of American citizens at ports in the United States increased from an average of 219,748 for each of the ten years before 1915 to 320,262 for each year from 1920 to 1929,

Later, in the years 1930 and 1931, the increase was even more pronounced, the total being 477,260 and 439,897 respectively, but in 1932 it receded to 339,262 and the effects of depressed economic conditions were responsible for additional recessions to 295,765 in 1933 and 264,148 in 1934. Because very few Americans remain abroad permanently this traffic is well balanced in each direction, whereas immigrant travel is largely inbound, in exceptional years, however, more than 50 per cent of the eastbound Atlantic passengers have been immigrants returning to the homeland permanently or on visits.

Until recently it had long been the custom of steamship companies to divide passengers into three well-defined classes—first class, second class, and steerage—following the prevailing practice of the European railways. Classification of railway passengers has never been in effect in the United States, although speed and superior accommodations offered by various limited and extra fare trains containing Pullman cars constitute a service that corresponds to first class service abroad, and ordinary Pullman travel corresponds roughly to continental second class. The appeal of first-class ocean travel was limited to a comparatively small group of travelers who were financially able to pay the higher costs of passage. To many Americans, any classification that reflected even indirectly upon their well-developed principles of social equality was distasteful. As an experiment, a number of steamship companies converted certain smaller vessels into “cabin ships” in which the first and second classes were combined to give all cabin passengers equal social privileges aboard ship including the use of dining and public rooms and promenades. The cost of passage varied widely and permitted travelers who occupied moderately priced quarters to enjoy the same treatment and freedom as those who chose the most expensive staterooms. The “cabin ship” met with immediate approval and the fleets of most of the major transatlantic lines now contain vessels of this type. Among those ships constructed within recent years for the accommodation of cabin passengers of one class are the *Lafayette* and the *Champlain* of the French Line, the *Britannic* and the *Georgic* of the White Star Line, and the new sister ships *Manhattan* and *Washington* of the United States Lines. The popularity of the “cabin ship” is not confined to the

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North Atlantic route, but the first and second classes are more widely retained in ships operating over other ocean routes

TOTAL WATER-BORNE PASSENGER TRAFFIC (FOREIGN) ARRIVING AT AND DEPARTING FROM UNITED STATES PORTS (1930-1934) ⁵

Year	Direction	First Class	Cabin	Second Class	Tourist Third	Third	Total
1930	Arrived	447,947	65,970	90,592	107,970	199,854	912,333
	Departed	426,523	61,788	68,304	97,844	180,192	834,711
	Total	874,470	127,758	158,956	205,814	380,046	1,747,044
1931	Arrived	356,076	49,095	54,244	80,420	108,797	649,832
	Departed	347,909	51,940	48,795	86,356	188,758	723,758
	Total	704,685	101,635	103,034	166,776	297,555	1,373,590
1932	Arrived	287,417	37,063	28,014	80,136	103,670	542,300
	Departed	284,912	37,908	25,275	93,153	207,661	648,909
	Total	572,329	74,971	53,289	170,284	311,331	1,191,209
1933	Arrived	364,411	35,508	17,553	77,321	94,371	589,664
	Departed	348,056	34,531	14,749	72,905	128,497	598,738
	Total	712,467	70,039	32,302	150,226	222,868	1,188,402
1934	Arrived	372,691	38,639	14,432	80,432	97,469	603,654
	Departed	359,359	34,891	11,335	71,512	109,490	586,657
	Total	732,050	73,510	25,767	151,935	206,959	1,190,221

The inauguration of the tourist third class has been due in a large measure to the decided reduction in immigration ⁶ The successful operation of many large steamships depended upon immigrant travel and considerable space in the vessels was set aside for the immigrants. In an effort to replace, in part, the loss in that traffic, tourist third class service has been provided for those of moderate circumstances to whom the regular third class accom-

⁵ U S Shipping Board, Water Borne Passenger Traffic of the United States (published annually calendar years) The 1934 figures are for the fiscal year ending June 30

⁶ Recently the steamship companies have found it more desirable to refer to this classification as "tourist class" in order to avoid direct reference to third class

modations were not attractive. Fares somewhat above those charged for third class are collected for tourist accommodations due to improvements in food, staterooms, and facilities for recreation. In some instances, lower-priced staterooms of the second class have been included in those available at tourist rates. This special class has increased travel among the clergy, educators, students and others whose desire had been curbed by the prohibitive fares of the first, second, and cabin classes.

As a result of the popularity of the new tourist class, a few vessels have been devoted exclusively to this service. The *Minnewaska* and *Minnetonka* of the Red Star Line are examples of former cabin-class ships which were given over entirely to the tourist class, and the *Pennland* and *Westernland* of the same line were altered to carry only tourist and third class passengers.

Within the past two years there has been a steady decrease in the number of vessels accepting second-class passengers in the North Atlantic. Tourist class traffic and the new cabin ships have detracted from the value of second-class accommodations. The scheduled sailing of the *Bremen* on April 22, 1934, marked the end of specifically designated second-class travel on the North Atlantic. The abandonment of the classification adds to the attractiveness of the tourist travel because it has made available to the tourist passenger the greater part of those accommodations, including both staterooms and public rooms, formerly reserved for second-class passengers at fares considerably above those now charged for the same accommodations. First class is maintained on the larger and faster express liners for passengers who demand and can afford luxury and speed in excess of that provided by the cabin ships. Theoretically, at least, the finest passenger liners on the North Atlantic route now have the same class distinctions as cabin ships but in the first class they preserve the de luxe characteristics commonly associated with first-class travel and are able to maintain fares at a point considerably above the level of the cabin ships. The Italian Line, operating the new high speed liners *Rex* and *Conte di Savoia* and several smaller vessels between New York and the Mediterranean, retains an equivalent of second class which is referred to as "special class", apparently the change is in name only, and the Italian

Line remains as the only large passenger line offering second-class accommodations between North America and Europe

Despite the extraordinary traffic development activities of the major passenger lines in recent years, a majority of them have failed to show an operating profit. On the North Atlantic, the immigration laws of the United States have automatically reduced travel, but since 1929 the serious distress occasioned by economic conditions has limited passenger travel between all countries of the world. The development of the cruise business resulted in the continued operation of many ships that could not be kept in regular service. America made a large contribution to the development of cruise traffic because (1) commercial activity was restricted at an earlier date in several European nations, (2) the interest of the American public in ocean travel has increased steadily for the past decade.

Many nations have not seen fit to restrict immigration nor to exclude entirely the oriental immigrant as has the Government of the United States. Passenger lines operating on the Pacific have never carried immigrants in great numbers but the losses in traffic from the orient to the United States were of consequence to those lines for some years after the exclusion of Chinese and Japanese.⁷

IMMIGRANTS ADMITTED SINCE 1870⁸

1871-1880	2,812,191	1927	335,175
1881-1890	5,246,613	1928	307,255
1891-1900	3,687,364	1929	279,678
1901-1910	8,795,386	1930	241,700
1911-1920	5,735,811	1931	97,139
1921-1930	4,107,209	1932	35,576
1925	294,314	1933	23,068
1926	804,488	1934	29,470

South America remains as the most promising territory for the immigrant, and it is probable that future emigration from European countries will increase in the direction of Argentina,

⁷ Combined average annual arrivals of immigrants at San Francisco and Seattle have been less than 30,000.

⁸ Statistical Abstract, 1933. Fiscal years ending June 30. Figures included all immigrants arriving before 1903, for 1904-5 6 aliens admitted, for 1907 to date only immigrant aliens admitted.

Brazil, and other Latin American republics where temperament and customs bear a resemblance to those of the Mediterranean and southern European residents. In this manner world immigrant travel might be restored in the future to levels approaching those of the pre-war years when the United States attracted millions seeking advantages not offered in their own countries. Restoration of North Atlantic travel to the levels of 1913 presents a problem that must be solved by developing traffic to replace the permanently lost immigrant business.

THE HANDLING OF IMMIGRANT TRAFFIC

As a group, immigrants are comparatively ignorant and poor. For their protection as well as to avoid the admission of ineligible aliens, they are afforded special treatment upon arrival at the port of entry. Rigid physical examinations are required and certain mental tests, including one to determine literacy, must be passed. Exclusion of the applicant is the result of failure to satisfy requirements of the law pertaining to disease, mentality, morality, anarchism or ability to be self-supporting. Criticism directed from time to time toward the manner in which immigrant aliens are handled at the port of New York reflects lack of consideration for the protection given to them. Unscrupulous persons would welcome greater freedom of contact in order to take advantage of the ignorance and credulity of the immigrants who are unfamiliar with our language and customs.

On arrival at New York, passenger steamers stop in the lower bay where health officers come aboard. If the report of the ship's physician is satisfactory, and if inspection of the crew reveals no contagion or infectious diseases, the vessel is permitted to proceed to the dock. Here, cabin passengers, mail, express and cargo are discharged, but immigrants must proceed by tender to Ellis Island for inspection by officials of the United States Bureau of Immigration and Naturalization. Those who are able to pass the exacting examination required by law are permitted to enter the country and proceed to their destinations. If an immigrant is denied admission, the steamship line that brought him is required to take him without cost to the port of embarkation. To protect themselves against such occurrences, the larger steamship companies provide for the examination abroad of all immi-

grants, failure to meet the tests thus applied indicates inability to satisfy the government authorities at the United States port of entry

When the ultimate destination is an interior point, the immigrant may make payment for a railway ticket at the time he purchases his steamship passage. To the steamship ticket is attached an order for an immigrant's railway ticket to the interior point. Railway tickets are issued, under government supervision, at Ellis Island by railway agents of the eastern and western trunk line carriers, and the immigrants are placed upon special trains or cars for the completion of their journey. The railway fares have been exceptionally low because economy is essential, and the immigrants have not been accustomed to the superior services available at higher rates. Efficient organization and cooperation of the railroads for handling this type of traffic has made possible satisfactory fares and accommodations which are granted only to bona fide immigrants.

In recent years the small number of immigrants arriving at the port of New York has made possible a change in the routine of the past. Immigration officials frequently complete the examination aboard ship, and the immigrants are landed with the other passengers without visiting Ellis Island. One of the most important functions now performed at Ellis Island is the maintenance of the personal records of the millions who came to the United States in the years past.

Treatment of steerage passengers aboard vessels under United States Registry is governed by the Passenger Act of 1882, as amended. Advantage was frequently taken of the ignorance and poverty of migrating aliens by confining them to poorly ventilated quarters of insufficient size, and by providing inadequate food, medical attention, privacy and sanitary facilities. Regulation of these and other practices, including carriage of explosives and dangerous cargoes on steerage decks, assures a safer and more comfortable voyage to travelers in the steerage.

OCEAN PASSENGER FARES

Inherent differences in the nature of passenger and freight traffic do not permit the making of charges for both services in the same manner. The more fundamental principles that govern

the level of ocean freight rates also affect the level of passenger fares, but the latter are influenced by factors peculiar to the passenger trade

1 Superior speed, comfort and luxury may be had on the larger vessels with corresponding increase in fares. In many instances the charge on one of the well-known express liners may be three or four times the fare paid by the passengers who elect to travel in the slower and less luxurious ships. Obviously these lines are relatively few in number.

2 On a given ship, fares vary according to the class of passage selected. With few exceptions among the ships of average size, at least two choices, cabin and third class, are available, and on the larger liners the four classes previously referred to offer a still wider choice.

3 Within each class, it is customary to charge more for desirable accommodations. Such variations within a particular class are not great in the tourist and third classes because simplicity prevails throughout them, but in the cabin ships and those having a first class, there is a wide difference. De luxe suites having living- and dining-rooms and private verandas command extremely high fares when other staterooms within the same class and entitling the traveler to the same privileges while aboard ship may be had for a fraction of the cost.

4 The general level of ocean fares varies with the seasons. The pleasures of travel increase during the milder seasons of the year, and as a consequence traffic is heaviest in the summer months. Fares are thus highest in summer when there is a greater demand for space and lowest in winter. There is also a tendency to make an adjustment in fares for the seasons between winter and summer by fixing them at an intermediate level.

The four factors mentioned above involve cost of service, value of service and the principle of charging what the traffic will bear, as is done in determining ocean freight rates. Though ocean fares are usually fixed primarily at what the traffic will bear, the competitive forces affecting them differ somewhat from those influencing line freight rates. The force of international commercial competition and port rivalry, although by no means entirely absent, is not so prevalent as in freight transportation. Ocean fares, moreover, are not subject to tramp competition.

Direct competition is limited to the lines themselves, and is subject to control by conferences

There are North Atlantic passenger agreements applying to traffic moving between the United States and Europe, by which minimum first-class, cabin, tourist, and steerage fares are agreed upon Fewer passenger conferences or agreements have at any time existed outside of the United States European traffic, but the competition in the passenger business between the lines operating elsewhere has sometimes been controlled indirectly through their freight agreements Except on the North Atlantic routes, the long-distance ocean passenger traffic is secondary to the freight traffic of the passenger-carrying lines Any agreement concerning division of territory or ports, the number of their sailings, vessel tonnage, or number of steamers influences passenger as well as freight competition

Ocean fares have fluctuated less and have, on the whole, been maintained at a higher level than freights, both because of the difference in competitive conditions mentioned above and because of the higher capital, operating and maintenance costs of the passenger service While the economies resulting from increased size of the vessels and efficiency of marine engineering were accompanied by lower freight rates, similar economies in passenger steamers were largely offset by the additional costs occasioned by increased speed, comfort, luxury, and betterments of the passenger services There are times, of course, when ocean freights temporarily soar to levels which passenger fares cannot approach The War in Europe, for example, although stimulating an acute demand for freight tonnage, caused a pronounced shrinkage in the volume of the North Atlantic passenger traffic

THE OCEAN MAIL SERVICE

Passenger steamship lines are of importance not only because of the passenger, freight, and express services provided by them, but also because most of the rapidly growing mail traffic is carried in passenger vessels The ocean mail service in several ways bears a direct relationship to the conduct of the foreign trade The United States Government has entered into parcel-post agreements with so many foreign countries that the international parcel-post service has become an additional means by which

exporters may forward small packages of merchandise.^o The usual agreement provides for sending through the foreign mails parcels weighing not over 11 pounds, and having a maximum length not exceeding 3 feet 6 inches, and a combined length and girth not exceeding 7 feet, but the agreements with several countries provide for different weights, and dimensions, and other regulations governing the mailing of parcels also vary. The domestic parcel-post service, moreover, applies to the outlying possessions of the United States, including among them the Panama Canal Zone, the Philippine Islands, Alaska, Porto Rico, the Virgin Islands, and to American naval vessels stationed abroad.

The international mail service also takes care of the great volume of letters and other mail matter that is essential to international commerce and to the maintenance of relations between different countries and peoples. Except where special arrangements have been made, the governing rules and charges are those administered through the Universal Postal Union, the central office or International Bureau of which is located at Berne, Switzerland. The Universal Postal Congress, composed of delegates from Postal Union countries, has provided a general international mail service including letters, post-cards, "reply-coupons," "commercial papers," such as bills of lading, invoices, marine insurance certificates, etc., newspapers and other printed matter, and small packages of samples of merchandise. Standard rules and postage charges are provided for each of the classes of international mail. Special postage rates, less than those of the Universal Postal Union, have been adopted by the United States Post-office to a number of foreign countries and outlying possessions. The Post-office also provides a foreign money-order service.

The United States Government pays the steamship companies that carry the ocean mails in one of two ways: (1) by a special contract, or (2) by a payment based upon the amount of postage received by the United States from the mail carried.

Before 1928, contracts for carrying the foreign mails of the United States were governed by the Act of 1891 which empow-

^o Detailed information is readily obtainable from printed instructions issued by the United States Post office Department.

ered the postmaster general to make contracts running from one to five years ¹⁰ Under this law, it was required that the vessels be of American registry, officered by Americans, and manned by a crew of whom at least one-half, after the first five years of the contract, were to be American citizens Ships were divided into four classes varying in gross tonnage between 1,500 and 8,000, and in speed between 20 and 12 knots Compensation ranged from 66½ cents per nautical mile for vessels of the fourth class to \$4.00 per nautical mile for the larger and faster ships of the first class and was paid without consideration for the weight of mail actually carried It was also required that vessels of the first three classes be of iron or steel construction and suitable for conversion into naval auxiliaries

The Act of 1891 and the amending Merchant Marine Act of 1920 were superseded by the mail provisions of the Merchant Marine Act of 1928, commonly known as the Jones-White Act In the Act of 1928, the postmaster general was directed to certify to the United States Shipping Board what ocean mail routes should be established to serve equitably the Atlantic, Mexican Gulf, and Pacific Coast ports, to handle the volume of mail then moving and the estimated volume of the next five years The postmaster general was also to specify the times deemed advisable for the departures of vessels carrying the mail, and to name the other requirements necessary to provide an adequate overseas mail service In turn, the Shipping Board was required to certify to the postmaster general the type, size, and speed of vessels which should be employed to perform satisfactorily the particular services Before making any contract, public notice must be given by advertisements in the newspapers of the principal ports of the Atlantic and Gulf coasts, or in those of Pacific Coast cities when the proposed service is to be on the Pacific Ocean Lowest bidders are not necessarily the recipients of contracts unless the postmaster general is satisfied that they possess the proper qualifications to insure satisfactory performance of the service advertised Maximum duration of any contract shall not exceed ten years All licensed officers must be citizens of the

¹⁰ The Merchant Marine Act of 1920 amended the act of 1891, but the amendment was of little practical value because contract payments were dependent upon subsequent congressional appropriations

United States, as required in the earlier laws, but after four years two-thirds, instead of one-half, of the crew must be citizens

All mail-carrying vessels must be of steel, propelled by steam or motors, and registered under the laws of the United States for the duration of the contract After February 1, 1928, designs for the construction of all new ships must be such as will permit their conversion into naval auxiliaries or be vessels which will be otherwise useful in time of emergency, the secretary of the navy is entrusted with the authority to accept or reject designs and specifications under this provision The Act of 1928 increased the number of classes or groups of vessels to seven, and fixed the maximum contract compensation as indicated below

Class 7 Vessels capable of maintaining a speed of 10 knots at sea in ordinary weather, and of a gross registered tonnage of not less than 2,500 tons \$1 50 per nautical mile

Class 6 Vessels capable of maintaining a speed of 10 knots at sea in ordinary weather, and of a gross registered tonnage of not less than 4,000 tons \$2 50 per nautical mile

Class 5 Vessels capable of maintaining a speed of 13 knots at sea in ordinary weather, and of a gross registered tonnage of not less than 8,000 tons \$4 00 per nautical mile

Class 4 Vessels capable of maintaining a speed of 16 knots at sea in ordinary weather, and of a gross registered tonnage of not less than 10,000 tons \$6 00 per nautical mile

Class 3 Vessels capable of maintaining a speed of 18 knots at sea in ordinary weather, and of a gross registered tonnage of not less than 12,000 tons \$8 00 per nautical mile

Class 2 Vessels capable of maintaining a speed of 20 knots at sea in ordinary weather, and of a gross registered tonnage of not less than 16,000 tons \$10 00 per nautical mile

Class 1 Vessels capable of maintaining a speed of 24 knots at sea in ordinary weather, and of a gross registered tonnage of not less than 20,000 tons \$12 00 per nautical mile¹¹

If the postmaster general is of the opinion that speed is especially important over a particular ocean mail route, he may base the compensation of the vessel upon speed, provided such vessels are of at least 20,000 gross tons This additional concession is made to the speed factor by authorizing payments in excess of \$12 00 per nautical mile for vessels of class one capable of speeds

¹¹ Secs 408 409, Merchant Marine Act of 1928 The nautical mile is 6,080 feet, and the number of such miles between given ports is to be determined by the postmaster general

above 24 knots "but the compensation shall not be greater than an amount which bears the same ratio to \$12 00 as the speed which such vessel is capable of maintaining at sea in ordinary weather bears to 24 knots "

When an American vessel carries the foreign mails of the United States without a special contract, its compensation is limited to the full postage on the mails conveyed, at present at the rate of 80 cents per pound for letters and post cards and eight cents a pound for other articles. In the case of a steamer transporting the mails under a foreign flag, compensation for the service is made in accordance with the amount currently fixed by the International Postal Union, and this amount is less than that paid to American vessels. Frequently the amount paid to American vessels exceeds the postage collected by the government due to the existence of treaties with foreign countries that reduce the postage on mail carried between those countries and the United States to the domestic level ¹²

Various additional expenses are incurred by the post-office department for the transportation of the foreign mails. These include the cost of carrying mails of American origin across the Isthmus of Panama by rail, the cost of steamboat transfer services at several American ports, the cost of maintaining sea post-offices on a number of fast passenger liners, and miscellaneous expenses such as those incurred in connection with the International Bureau at Berne, the maintenance of navy mail services, the operation of supplemental airplane routes, and the salaries of the postal officials in charge of the Division of International Postal Service in the Post office Department.

The sea post offices maintained on 43 ocean steamers during the fiscal year ending June 30, 1934, greatly expedite the delivery of the incoming mails, and reduce the amount of sorting at the ports. During the ocean voyage, the clerks in charge of the sea post-offices sort the mail and sack it with reference to the main distributing centers in the United States. When the ocean steamer reaches the quarantine station in lower New York Bay, it is sometimes met by a special mail steamer of the transfer service, "which receives the mails and conveys them as rapidly

¹² Letters may be sent to Brazil, Chile, Cuba and several other Latin American countries at the domestic rate

as possible to the various wharves, whence the mails for the City of New York are immediately sent to the post-office in that city, and those for inland destinations are forwarded by the first outgoing trains "

Contracts for carrying mail have long been a favored method of subsidizing the merchant marine. The extent to which preference is given to American flag-ships is evident from information contained in the annual reports of the postmaster general. For the year ending June 30, 1934, vessels of American registry carried 69 per cent of the overseas mail dispatched from the United States, but they received more than 90 per cent of the total mail payments. Transatlantic mail was transported at a cost of \$12,730,000 of which but a small fraction went to foreign ships for carrying 43 per cent of the mail. Combined services to Central and South America and the West Indies also required an expenditure of several millions, here the prevalence of American lines permitted the government to send 81 per cent of the mail to these countries on such vessels and to pay the owners thereof over 95 per cent of the total costs of carriage. Payments for transpacific mail were \$7,261,000, and American shipping companies received an equally high percentage of the transportation cost for carrying only 78 per cent of the mail. The following table indicates the amounts required in recent years to maintain ocean mail routes and the costs of carriage of the same amount of mail computed according to the poundage method of compensating American carriers.

It has frequently been suggested that the designation "ocean mail contracts" be changed in order to correct the popular misconception of the purposes for which payments are made under such contracts. In the annual report for the year ending June 30, 1933, the Shipping Board declared the above designation to be "a misnomer for the character of service rendered" and recommended the continuance of this type of government aid to the merchant marine for the maintenance of essential ocean services on "government contract routes." If that or a similar designation were employed, it would be readily understood that the expenditures were in the nature of a subsidy granted for the purpose referred to above and were not primarily for the carriage of the mails.

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COST OF CONTRACT OCEAN MAIL SERVICE UNDER ACT OF 1928 ¹³

Year	Cost of Contract Mail Routes	Cost on Weight Basis at Ameri- can Rates	Net Cost of Con- tract Routes
1929	\$ 9,304,217 82	\$1,085,159 97	\$ 7,619,057 85
1930	13 000,440 87	2,272,738 36	10,768,702 51
1931	18,818,203 76	2,710,645 82	16,107,617 94
1932	22,402,761 54	3,266,544 92	19,136,216 62
1933	20,054,590 35	3,000,457 17	23,054,133 18
1934	29,011,481 99	2,598,962 86	27,012,519 13

In 1932, the postmaster general commented as follows

In the discussion of these contracts the tremendous benefits which accrue to the Nation aside from the carriage of the mails are too frequently overlooked. The maintenance of regular, frequent, and dependable service at reasonable rates for cargo on practically all the trade routes of the world is of incalculable benefit to all classes of our people who derive an advantage from foreign commerce. This is in addition to their value as naval auxiliaries, and to benefits which flow from the expenditure in this country of large sums for the building and operation of ships—sums which would otherwise be paid for foreign labor and materials ¹⁴

More recently, the President, in a special message to Congress, March 4, 1935, has asked for the abolition of the existing ocean mail contract system in favor of a system of direct subsidies to cover the differential between costs of constructing and operating American and foreign flag vessels. Direct subsidies are probably more desirable than the present scheme of combining in one sum mail payments and direct aid. In addition to clarifying the expenditures, the proposed plan, it is hoped, will include the general cargo vessels not eligible for the carriage of ocean mails.

The attitudes of the United States and other countries toward aid to their respective shipping industries are discussed in greater detail in Chapters XXXII and XXXIV.

¹³ Annual Report of Postmaster General (1934), years are fiscal, ending June 30, costs on weight basis are computed with 80 cents per pound as the rate paid American non contract carriers.

¹⁴ Annual Report of Postmaster General (1932), p 23

PASSENGER TRAFFIC MANAGEMENT AND DEPARTMENTS ¹⁵

The passenger traffic department is under the supervision of the passenger traffic manager who is concerned principally with questions of policy pertaining to inter-carrier relations and the development of profitable passenger travel. It is his task to fix the level of fares to be charged and to represent the company at meetings of passenger conferences to which the company may belong ¹⁶ The minimum fares for cabin passengers are usually agreed upon by the various lines, but the right to increase fares above the minimum is reserved, and any decision to do so rests with the passenger traffic manager

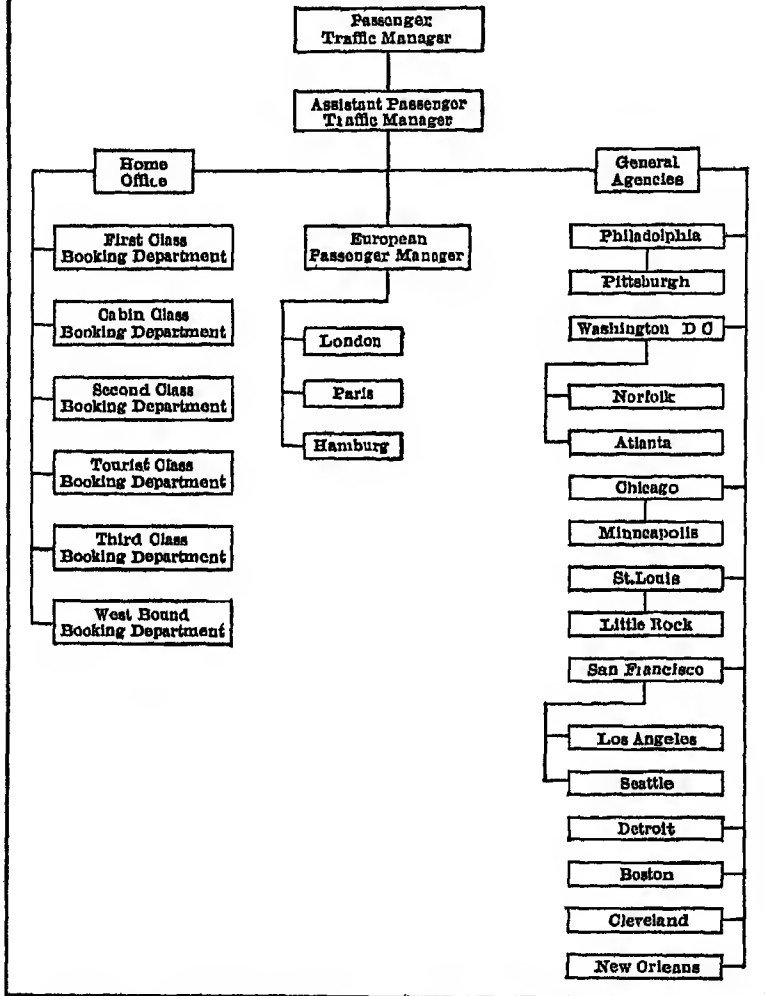
Additions of vessels to supplement the existing capacity of the line, extensions of services already offered, and the classification of passengers are other duties As mentioned in Chapter X, it is highly important that reliable opinions be given concerning the advisability of constructing or acquiring additional ships, while the department of operations decides upon the engineering and construction details of the vessels to be added to the fleet, traffic studies and development programs made by the freight and passenger traffic managers determine the size of the ships and the type of passenger and cargo accommodations best adapted to the service to be rendered by the company Classification of passenger services has become more important in recent years with the addition of cabin and tourist classes The inauguration of the cabin class was begun by consolidating the first and second classes to eliminate social distinction on vessels already in operation In some cases, a part of the space previously occupied by the second class was included in the accommodations given to the tourist class The success of these innovations, particularly on the North Atlantic, led to the construction and design of new vessels to carry only one class of cabin passengers Programs of expansion and construction usually involve a large outlay of capital and depend for success upon the correctness of estimates by traffic officials concerning the amount and type of business that may be acquired under given conditions

In the administration of the functions of the department, the

¹⁵ See G. G. Huebner, *Ocean Steamship Traffic Management*, Chap. III

¹⁶ Ocean line conferences are discussed in Chapter XXII

ORGANIZATION OF A PASSENGER TRAFFIC DEPARTMENT



FORM 5 ORGANIZATION OF A PASSENGER TRAFFIC DEPARTMENT

manager is aided by an assistant who is often given charge of the tourist and third classes. The reduction in immigration has brought about radical changes in the duties of this division. During the years immediately preceding the World War, immigrant travel was most profitable to the steamship lines, and capable representation was necessary in conference meetings when fares were made and traffic apportioned among member lines. The number of immigrants arriving at United States ports during 1934 was less than 4 per cent of the average for the years 1910-1914. The nature of traffic development activity in the tourist and third classes was necessarily changed with the restriction of immigration and is now largely confined to the promotion of travel by people of moderate means.

Actual administration of the numerous functions of the passenger traffic department requires subdivisions in charge of senior clerks who are responsible to the passenger traffic manager and his assistant.

THE CABIN DEPARTMENT

The booking of cabin passengers is carried out by the main office, and branch offices or agents who are appointed to represent the line. Under the chief or senior "booking clerk," the main office "booking clerks" perform the duties pertaining to the sale and assignment of accommodations. To be properly qualified they must have a thorough knowledge of the fares, services, and practices of the line, it is also highly desirable that they possess linguistic ability because of frequent contacts with travelers who have little or no command of English. In order that the prospective patron may have every assistance in the planning of his voyage, some members of the staff must have more than a passing knowledge of foreign exchange, railroad and steamship connections, hotels, and other important details of travel abroad. Sometimes, the advantage of first-hand acquaintance with conditions in other countries is acknowledged by sending out booking clerks to travel over the routes for which they book passengers. Large companies maintaining services to countries in different parts of the world may assign clerks to particular services. In this way, specialized knowledge of each service and country with which the company is concerned is available to travelers.

In addition to the prerequisites mentioned above, certain general qualifications are required of booking clerks. Essentially their usefulness depends upon sales ability. As a group, patrons of the cabin class are exacting and accustomed to social refinements. A thorough knowledge of languages, life abroad, and ocean travel is insufficient if the clerk is unable to impart such knowledge when inquiries are made, by prospective patrons of the line.

Routine office work incidental to the booking of passengers at the home office is added to by work in connection with the assignment of accommodations to passengers who have made reservations through branch and district offices and agencies throughout the country.

"Landing clerks" are employed at the main office to represent the line upon inbound vessels. They board the ship before it reaches the dock and must be prepared to answer the questions of passengers regarding railroad travel, hotels, and the immigration laws. Ability to speak two or more languages adds greatly to their value as representatives of the line. Assisting them in the performance of services for incoming passengers, are "railroad booking clerks" who are located in the office ashore to arrange railway transportation for those desiring to continue their voyage to interior destinations.

Branch Offices—Larger steamship lines maintain offices in the principal cities of the United States, and at times in a limited number of the most important ports and cities abroad. Their organization resembles that of the main office, with booking clerks and other employees corresponding to the junior clerks of the main office. In many cases both freight and passenger traffic are solicited by the same office, but orders and directions bearing on the former are issued by the freight traffic manager. Although the heads of branch passenger offices are directly responsible to the passenger traffic manager, solicitation of third class and tourist-class travel may be under the supervision of the assistant passenger traffic manager, who issues the instructions from time to time regarding the development and handling of these classes of traffic. In order to promote efficiency and coordination among the many branches it is customary to establish district offices in the cities of greatest population and to clothe the district man-

ager with certain authority over the branch office managers in other cities of the district

The personnel of foreign branches is usually composed of natives who are better qualified, by long residence and familiarity with the customs and languages, to serve the best interests of the company. As is the case in the freight service, there is little interchange of employees between home offices and those in other countries.

Passenger Agents—Authorized agencies for the booking of passengers are far more numerous than the branch offices maintained by the steamship companies. Agents are appointed by the head of the department and are not employees of the line, they receive a stipulated commission upon the fares collected from passengers making reservations through their offices. Commissions are standardized and regulated by steamship line conference agreements to prevent destructive competition. In the absence of any limitation upon the percentage of the fare accruing to the agent, companies would be tempted to increase the commissions of their agents in an effort to stimulate activity in their behalf. Customarily the compensation is limited to 5 per cent of the fare paid by the passenger, but on certain types of business, mainly special cruises and tours, the agents may receive a higher percentage of the cost of the passage. Agents are required to observe regulations issued by the line, or the conference to which the line belongs. Uniform observance of such rules assures like treatment of all steamship companies and, at the same time, protects the holders of agency appointments by forbidding the granting of rebates of any kind to purchasers of tickets. The aim of the steamship companies is to eliminate unfair and unrestricted competition with one another. The strict observance of instructions by agents is demanded in order that the conference control over competition among member lines may be extended to include the representatives as well as employees of the companies, and at the same time agents are assured of a fixed percentage return on all bookings. It is essential, both to the lines and to the agents, to forbid sharing or reducing commissions, and every effort is exerted to detect violations of this provision of the agency contracts. Cancellation of agency contracts usually follows failure to conform to one of the more important regu-

lations, but in some instances a fine is imposed, failure to pay the fine, or continued disregard for the agreement, results in disqualification of the agent as a representative of any member of the conference

Traveling Passenger Agents—The traffic-soliciting activity of branch offices and agencies is supplemented by direct employees of the line. It is the duty of traveling passenger agents to solicit patronage for the ships of the company represented by them and to act as supervisors of agencies. Contact is made with individuals, schools, clubs, and other organizations in an effort to stimulate travel. Frequently the traveling agents are called upon by the passenger traffic manager to investigate application for agencies and to make recommendations to the home office. The important work of agency inspection and supervision is also entrusted to traveling agents acting under instructions from the manager.

Tourist Department—The rapid increase in tourist travel during the last decade has made necessary a larger main office force, confining its activities to the work of planning and administering cruises. For many years, tourist agencies with offices at many points in this country and abroad have promoted and conducted cruises and tours to various parts of the world. Groups of people traveling in this way are conducted over a defined itinerary at a total cost per person considerably below the cost of a similar trip under ordinary circumstances. Recently there has been an increase in the number of special cruises offered by the steamship lines. In order to take care of the cruises sponsored directly and those promoted by the various travel organizations, clerks of sufficient number are assigned to this work. Experience gained by employees of tourist and travel agencies frequently leads to their employment by steamship lines as specialists in organized and conducted travel.

Publicity and Supply Departments—Advertising and publicity are of great importance in the development of passenger traffic. Shipments of freight are acquired by personal solicitation, and by a comparatively small amount of advertising which is confined largely to trade journals and shipping magazines. Stimulation of the desire for travel, however, rests more with the effectiveness of publicity. The pleasures and advantages of

ocean travel are set forth regularly in the daily press and popular magazines and in special brochures, circulars, maps and descriptive booklets, the latter type of publicity is distributed to interested persons by the various branch offices and agencies throughout the country. In addition to the preparation of information for the public, the department is responsible for the issuance of orders, notices, and similar material for the guidance of branch offices and agencies.

Because of the importance of advertising and the large expenditures made for printing and illustrations, the passenger traffic department of larger steamship companies will have a subdivision known as the supply department. Actual printing and distribution of publicity materials originating in the publicity department centers in this office. Tickets, certificates of appointment for agents, and the numerous books, forms, and other supplies used by branches and agencies are also issued by the supply department.

The Steerage Department—Although the decline in immigrant traffic has altered considerably the work of the steerage department, it continues to function in the organization of the larger steamship companies for the handling of immigrants and others who travel in the third and tourist-third classes. The increasing importance of tourist-third class traffic on the North Atlantic had added greatly to the work of the department.

Administrative responsibility rests with the assistant passenger traffic manager who is the immediate head of the department. He reports to the passenger traffic manager, but usually has wide authority over fares, services, and questions of policy that pertain to the classes of travel under his jurisdiction. Agencies and branch offices, while under the general supervision of the passenger traffic manager, receive instructions from the assistant, who issues orders regarding the booking and handling of third-class and tourist-third-class traffic.

The main office employees of the steerage department are required to possess qualifications similar to those necessary for employees of the cabin department, and, in general, they are similarly designated as booking, landing and railroad clerks. In the organizations of all but the largest passenger carrying lines,

it is customary for one group of main office employees to handle both cabin and steerage business, but some smaller companies specializing in the new tourist class travel may find it advantageous to divide the duties in a manner similar to that employed by the larger lines

COÖPERATION WITH OTHER DEPARTMENTS

Many services are performed for travelers by employees who are not included in the organization of the passenger traffic department. Afloat, the purser and his assistants are responsible for the collection of tickets, for passenger lists, and for the keeping of records and preparation of reports. In addition to specific duties to be performed by the purser there are many services including the making of hotel, train, and other reservations in advance of landing, and the changing, sending, and receiving of money. He and his assistants are part of the organization of the marine or deck department, but the character of services rendered makes cooperation necessary, and in certain respects they are responsible to the passenger traffic manager and to the treasurer. The latter official, since he is charged with the custody of the receipts from fares and with the administration of arrangements for the issuance of money orders and traveler checks, is reported to by cashiers located in the main office of the passenger traffic department. This is for the convenience of passengers and the efficient handling of cooperative functions.

Auditors of the comptroller's department check passenger receipts against tickets sold, and employees of the baggage department, nominally under the general wharf superintendent, receive instructions for the handling of baggage from the passenger traffic department. Other examples of cooperation involving extensions or restrictions of services, rate making, and the construction and acquisition of vessels have been mentioned at the beginning of the chapter.

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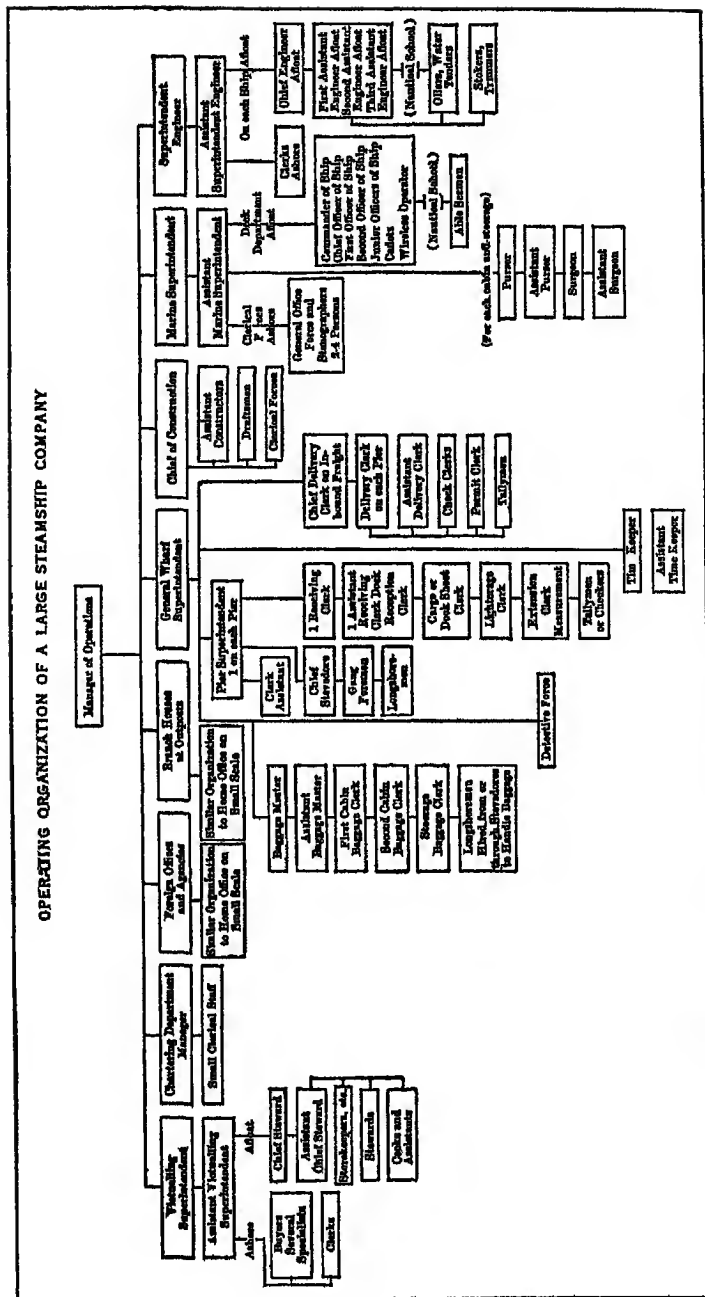
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CHAPTER XV

THE OPERATING ORGANIZATION OF VESSEL LINES ON THE OCEAN AND INLAND WATERWAYS

IN an earlier chapter, the traffic department of a steamship line was referred to as the sales division of the company organization, because the most important duty with which it is charged is the disposal of available passenger and cargo space at rates and fares comparable to those charged by other companies for the same or a similar service. Intense competition, especially in overseas trade, prevents a high level of charges, and conference agreements, to which most large lines are signatories, govern the reduction of charges below a level adjudged by member lines to offer all members reasonable opportunity for profitable operation in normal times. Thus, as in industry ashore, the department of operations is responsible for the performance of the service, for which the patron pays, in competition with other lines or agencies of transportation. In a general way, sales and production divisions in industries ashore have counterparts in the traffic and operating departments of steamship companies. The success or failure of vessel operation is greatly dependent upon economical performance of services contracted for by the traffic department in a highly competitive market.

The performance of the multitude of duties pertaining to operation demands an elaborate organization in a large company. This department contains more employees and requires the expenditure of a larger share of company funds than all others combined. At the head of the department and responsible for the various subdepartments is the general manager of operations. The importance of his position cannot be exaggerated. As the official in charge of the operation of vessels and the movement of passengers and cargo, he contributes to the success of the company or nullifies the efficiency of the traffic and other departments. He must possess a wide knowledge of marine engi-



FORM 6 OPERATING ORGANIZATION OF A LARGE STEAMSHIP COMPANY

neering, construction, and repairs, cargo handling, chartering, terminal operation, and victualing. He formulates operating policies and selects assistants who are qualified to relieve him of almost all detail. In the organization of a large steamship line, the subdivisions of the department of operations total five or more depending upon the concentration of authority and responsibility. At the head of each subdivision is an official who answers to the general manager of operations.

VICTUALING SUPERINTENDENT AND THE CHIEF STEWARD'S DEPARTMENT

Ample and palatable food is of first importance in promoting satisfaction among passengers and employees aboard ship. Companies operating a large fleet of passenger-carrying vessels make every effort to establish and maintain reputations for the excellence of their cuisine in order to attract and hold patrons. Elaborate and expensive menus are expected by travelers. The morale and loyalty of the crews and officers are an essential part of profitable operation to be secured by satisfactory treatment in which the question of subsistence plays an important part. When it is realized that several thousands of persons may be aboard the ships of one large company at one time, the magnitude of the task of supplying, preserving, and serving food may be understood. It may be compared to the operation of a gigantic hotel, but with the added problems and difficulties created by the fact that once a vessel leaves port it cannot add supplies. Careful planning must govern the proper selection of quantities and classes of foodstuffs.

Ashore, the organization of the victualing department is not a complex one because it is centered in the hands of a few responsible persons. Purchasing is carried out by specialists who have had long experience and training at sea or who are qualified by training ashore in similar work. Aiding the buyers are a number of clerks who attend to the clerical details of the office. Much of the actual supervision of the department is carried out by an assistant to the superintendent to whom immediate authority is given over buyers, clerks, and employees afloat.

In all branches of operation, employees aboard ship far outnumber those who are engaged ashore. Aboard cargo vessels, a

few persons are able to handle satisfactorily commissary affairs, but on large liners accommodating 1,500 to 2,000 passengers, it is necessary to assemble a total of from 500 to 600 employees to perform satisfactorily the duties allotted to the steward's department. It is significant to note that the above figure usually exceeds one half of the entire crew, but it should be remembered that care of staterooms, deck service, and other necessary duties require a large number who are not concerned with preparation or serving of food. In charge of all activities aboard each vessel is the chief steward who answers to the superintendent or his assistant at the home office ashore.

Except on freighters and small passenger vessels, there is a definite division of the steward's department into two parts. One group is headed directly by the chief and the other by the first or assistant chief steward. In each instance specialization increases with the size of the ship. The chef's department for a large transatlantic liner will have several cooks, each one concerned only with the preparation of certain foods such as roasts, entrees, fish, and sauces for cabin passengers. Pastry cooks, bakers, and butchers complete the list of the more important members of the staff who are concerned with the preparation of food. There are, however, numerous employees who perform the many additional duties that come under the supervision of the chef. Pantrymen, scullions, silvermen, and commissary, or store-room workers are found in all but the smaller ships. Food for the tourist and third classes and the crew of the largest vessels is prepared by cooks under the supervision of chefs who are designated as tourist chef, third-class chef, and crew chef.

Direct contact with passengers is made by employees under the jurisdiction of the first steward. Authority is delegated to a senior second steward to supervise the work of waiters, bus boys, and other dining-room attendants. His task is an important one. Passengers expect extraordinary service and courtesy, and dining-room personnel must be qualified, by experience and temperament, to please the most exacting travelers. Tact, patience, and linguistic ability are essential characteristics to be looked for in their selection of waiters who must serve a clientèle generally more fastidious than the average patron of hotels.

Care of staterooms is carried out under the direction of an-

other second steward who is sometimes referred to as the junior second. His subordinates are at the service of passengers at all times and are called upon to perform an endless variety of small services. Honesty, courtesy, and strict obedience in the stewards and stewardesses are essentials to the creation of the superior service so essential to the maintenance of a successful passenger line. In the third class and in the tourist class the responsibility for the dining-room and stateroom services is centered in one person. Usually referred to as tourist chief steward and third-class chief steward, they administer to the wants of passengers in much the same manner as the senior and junior second stewards. Usually cabin passengers outnumber those in the lower classes, and the service to which the latter are entitled is naturally less elaborate because the cost of passage is considerably lower. This comparative simplicity permits a less detailed organization under the tourist and third-class chief stewards.

Palatial modern liners make available a great many innovations for the comfort and diversion of passengers. Florist shops, daily newspapers, telephones, concert and dance orchestras and gymnasiums are a few of the attractions to be expected in all new ships of the better class. Expansive enclosed decks and lavishly decorated public rooms tend to increase the time each passenger spends away from his own quarters. At the same time, additions must be made to the staff of the chief steward in order to keep pace with the increased demand for service. Although no great amount of administrative work is involved in the performance of any one of the supplementary services mentioned, the number of employees involved is surprising. The chief deck steward and his assistants are charged with the comfort of passengers who enjoy the decks for sports, rest, or exercise. Morning and afternoon, bouillon and tea are served, and at all times various deck sports are available. Swimming and gymnasium instructors, bath attendants, musicians, bell boys, telephone operators, printers, and bar, or canteen stewards are examples of employees made necessary or increased in number by the desire of the steamship companies to create and maintain an atmosphere of comfort and elegance for the satisfaction of the modern patron.

Aboard freighters on which there are no accommodations for

passengers, the organization of the entire steward's department is comparatively simple. This is due not only to the absence of passengers and employees to serve them, but also to the fact that the vessels are very much smaller, fewer people are required to man them and the service is not elaborate. However, the number of cargo carriers and ships with limited accommodations for passengers far outnumber the true passenger liners and in the aggregate account for a large number of people. It is the duty of the steward's departments of these vessels to serve wholesome and satisfactory food at reasonable cost to their employers. The problems involved differ in some respects from those encountered on fast liners. The latter sail between the important ports of the world at relatively high speeds. The extended voyage time of the cargo ship adds to difficulties of food preservation, and purchasing of supplies at the many small ports of call cannot be standardized to the extent possible for liners that touch only at important cities. Quite commonly the stewards of cargo vessels are given wide authority in the matter of purchasing supplies because the length of the voyage does not permit them to provision the ship at the home port for so great a length of time. It may be understood that those ashore who are charged with the administration of the entire victualing activities of a large line must evolve a system of reports and accounts from which can be measured the efficiency of the organization afloat. Success depends upon coordination of the activities of the various chief stewards and upon advantageous buying. Studies of markets, foods, costs per passenger and per crew meal, and of other pertinent data are made constantly in an effort to reduce expenses without impairing service to passengers or the goodwill of the crews.

MARINE DEPARTMENT

At the head of the marine department is the marine superintendent or port captain. He is the official ashore to whom the masters of all company ships report upon the operation of their commands. Thus he is responsible to the manager of operations for the handling and navigation of the ships, for their docking, undocking and repairing, for the selection of qualified officers, and, in cooperation with the wharf department, for the proper

stowage of cargo. It is also his duty to inspect and maintain the ships and to supply them with stores for the next voyage.

Ashore, the marine superintendent has a very small organization because his work is of an administrative nature. Usually one assistant and a few clerks are sufficient. Reports of masters and other deck officers are the source of information not obtainable by personal conferences when the vessels are in port. One major consideration is vessel turn around or time spent in port. A certain amount of time must be consumed in discharging cargo or passengers and cargo before loading for the outward voyage. This interval must be as brief as possible in order that the ship may resume her voyage. The value of time spent in port is little realized by the layman. Overhead costs alone on a better class passenger vessel may exceed \$2,000 per day to which must be added the costs of dockage, wages, fuel, and other incidental expenses. Hence, delay for any cause at any time must be avoided. Dry docking, repairing, or inspection should be done as quickly as possible consistent with safety and efficiency.

Afloat, the employees under the jurisdiction of the port captain are the master and all officers and members of the crew assigned to the deck department. The master is in supreme command while the vessel is at sea and is responsible for the navigation, maintenance, and safe operation of the vessel. He also acts as the agent of the owners in matters pertaining to the payment of dockage and towage charges, contracts for fuel and supplies, or, in brief, anything reasonably necessary to complete the voyage or insure safety to vessel, cargo, and persons aboard. In port, it is his duty to confer with the marine superintendent concerning problems of operation and to accept responsibility for the assignment of proper persons to perform the necessary port duties including fueling, loading of supplies, and stowage of cargo, of which the last named is of greatest importance. Actual stowage is performed by longshoremen, but careful supervision must be exercised by the deck department to avoid damage to the various commodities and to make certain that the vessel will not be endangered at sea by shifting of improperly placed cargo.

Subordinate ship's officers of the deck department are usually the chief officer or first mate, second mate, and third mate. Of these, the chief officer acts in an executive capacity. All routine

work of the crew is done under his orders, subject to the approval of the captain, and as the first assistant to the latter he is the only person aboard ship whose duties are all inclusive. The second mate is usually the navigating officer, in addition he is in charge of the after part of the ship under the direction of the chief officer. Direction of cargo loading in the after holds is thus one of his responsibilities. The work of the forward part of the vessel is delegated to the third officer who supervises loading of the forward holds and acts as the ship's signal officer. All of the foregoing are watch officers with the exception of the captain. Because close supervision of the various activities cannot be carried on by the watch officers, it is customary to include fourth and additional third and second officers in the deck department of large vessels. In such cases, the chief officer may be exempt from standing a watch in order that he may better coordinate the work of those under his direction.

The duties of the quartermasters make them assistants to the officers on watch. They may act as helmsmen, take soundings, call for signal equipment, such as flags, rockets and lights, or render aid in other ways to the safe forward progress of the vessel. While the ship is in port, they may stand gangway watches or watches in the holds, if the ship is loading or discharging cargo. The carpenter and his aids are the repairmen. Named in the days of wooden ships, they continue to maintain decks, hatch covers, booms, masts, tanks, and other parts of the vessel most liable to damage or deterioration. The routine work of polishing, cleaning, chipping and painting, is performed by the seamen under the direction of the boatswain, who receives orders from and reports directly to the chief officer. His rôle is that of a foreman who is responsible for the work of the seamen.

Other employees of the deck department have no direct bearing upon operation. The laws of most countries require that vessels carrying more than a minimum number of passengers employ a surgeon to safeguard their health. On vessels of extreme size it is sometimes necessary to include an assistant surgeon, one or more nurses, a pharmacist, and hospital attendants.

The traveling public comes in frequent contact with the purser and his assistants. Although the work of the purser is not stand-

ardized in all steamship lines, or on all ships of one line, a majority of the organizations assign certain definite responsibilities to him. When the vessel carries no passengers, his work is entirely commercial in nature, and includes all of the paper work incidental to the entry of cargo at foreign ports and to the payment of wages to the crew and for the operation of the vessel unless they be due at a port where the company has a representative. This work is quite complicated and requires considerable training, but is not of great volume and may be performed by one man. Aboard passenger ships, a large amount of responsibility rests with the purser. Most of the duties mentioned above remain and those peculiar to the passenger trade are added. Passenger manifests and landing cards are required by the governments of practically all nations. Services not performed for travelers by the steward's department are numerous, and in this manner the purser and his staff fall heir to a multitude of duties. His office is the information bureau to which inquiries of all kinds are brought. All financial transactions, including the cashing of checks, changing of money, and payment of bills contracted aboard ship are supervised by him. Valuables may be checked at the office, wireless messages paid for, mail received, and steamship or railroad reservations made. It is also common practice to subordinate to the purser some employees who have been listed above as members of the steward's department. Barbers, tailors, musicians, radio operators, and directors of recreation are examples. Due to the varied activities of his department the purser is often obliged to make reports to the freight and passenger traffic managers and the treasurer in addition to the marine superintendent.

ENGINEERING DEPARTMENT

The operation, maintenance, and repair of propelling machinery is one of the most important phases of ship operation. Fuel costs alone constitute one of the heaviest of operating expenditures. As is true of the victualing and marine departments, the personnel is divided between shore and ship with a comparatively few persons in the former group. The port engineer or superintendent engineer is the administrative head of the department. Usually he has had extensive experience at sea.

as an engineering officer, because in no other way is it possible to obtain the knowledge of marine power plant operation so essential to the performance of his duties. The propelling unit of each vessel is designed to generate a given number of horsepower and to consume a definite amount of fuel per horsepower hour. This theoretical computation of perfection, plus builders' trials, are the standards upon which actual operation is based. Compensations are made for changed conditions of operation, for deterioration, and for other variables that bring about changes from the original performance of the prime movers. The port engineer is thus enabled to determine the efficiency of the engineering staff of each vessel and to demand explanations in the event certain slips fall below the standards set for them. In order that performance may be accurately checked, elaborate reports, supplementing that of the log of each voyage, are submitted to the port engineer by the chief engineers of all vessels under his supervision. The reports include much technical information as well as statements regarding total fuel and lubricating oil consumed, hours steamed at various speeds, weather conditions, and other essential facts, and mishaps of any kind are reported, and recommendations for repairs to main and auxiliary machinery are made at the end of each voyage. Purchasing of fuel and other engine room supplies may be included in the organization of the engineering department. This duty is not as complicated as purchasing for the steward's department because fuel costs are usually more or less standardized, and other supplies account for a small percentage of the expenditures of the department.

Afloat, the engine room force consists of a chief engineer, who does not stand a watch excepting on small ships, first, second, and third assistant engineers and firemen, watertenders, oilers, electricians, and others. Greater specialization is necessary in the large liners, and many additions are made to the above typical engine-room force. Auxiliary machinery is operated for lighting, heating, cooking, refrigeration and ventilation. Electricians, refrigerating engineers, plumbers, and machinists become essential parts of the engineering personnel. Large reductions in the boiler-room force have resulted from the replacement of coal by fuel oil, but direction of all auxiliary and maintenance work

cannot be assumed by the watch officers and it has been found necessary to add to the licensed engineering staff. The largest of the passenger ships will carry several first, second, and third assistant engineers in addition to fourth assistants who are usually recently licensed and comparatively inexperienced. Coordination of all functions of the department rests with the chief engineer. Each of the three senior assistants stands a watch and is responsible to the chief engineer for the proper operation of the ship's machinery during that watch.

By judicious selection of officers and constant supervision of operating performance, the port engineer strives to produce propelling and auxiliary power economically, and to reduce repair costs to a minimum. The magnitude of the task becomes obvious when it is realized that the fleet of one company may number twenty or more vessels containing machinery valued at millions of dollars.

WHARF DEPARTMENT

It is customary for important steamship companies to own or lease terminal facilities for the docking of vessels and loading and discharging of cargo. Efficient terminal management is one of the most important phases of operation. Vessel turn-around is largely dependent upon the expeditious handling of cargo. Satisfaction among shippers and freedom from loss and damage claims are of vital concern to the operators. Improperly loaded vessels are neither profitable nor safe at sea.¹ Under the supervision of the manager of operations, it is the task of the general wharf superintendent to organize and administer his department in such a manner that freight carried in vessels of his line is handled carefully and economically with due regard for the safety of the ship and time spent in port. Facilities must be provided for the receipt and delivery of freight and for temporary storage.

The general wharf superintendent is in charge of the work of the department. Because all of the work is performed in port, there is no division of the personnel between ship and shore as in the victualing, marine, and engineering departments. At each company pier, a pier superintendent is entrusted with the per-

¹ See Chapters x and xi

formance of the duties listed above excepting the delivery of inbound freight to consignees Under the immediate supervision of the pier superintendent, are the stevedoring force and receiving clerks, dock sheet clerks, and checkers or tallymen

The working force, or longshoremen under the direction of the chief stevedore, load and unload the cargo Although the operations are always supervised by wharf department employees and officers of the vessel, most steamship companies find it more economical to contract with local stevedoring firms to load and unload their ships at an agreed-upon rate per cargo ton This procedure is due to the fact that one stevedoring firm may serve several shipping companies and in this manner may offer more or less steady employment to the foremen and longshoremen with resultant efficiency in performance of the work Arrivals of vessels of one steamship line are usually insufficient in number to permit maintenance of a stevedoring organization within the wharf department Whether done by contract or by company employees, stevedoring is of vital importance The chief stevedore places foremen in charge of the groups of longshoremen who perform the manual labor involved The latter are usually divided between the wharf, deck, and ships' holds

Before loading outbound cargo, a dock receipt is issued to the shipper or his representative for each shipment when it is brought to the pier One or more receiving clerks issue these receipts and make notations upon them of any apparent damage Dock sheets, containing a detailed description of the shipments, are prepared by clerks At the time of loading, tallymen make a list or tally sheet of all shipments going into the holds of the vessel Inbound cargo is likewise tallied, usually by the same tallymen who are used alike by the receiving and delivery departments After the various shipments are unloaded from the ship they are checked against the manifest of the vessel and surrendered to the consignees when company and customs requirements have been met Receiving and delivery organizations are duplicated at each pier Usually the pier superintendent is responsible for the receiving of freight, but the employees of the delivery department are supervised by the chief delivery clerk who reports directly to the general wharf superintendent

In case passengers are carried, the wharf department handles

their baggage The volume of luggage and its importance to the traveler make promptness and accuracy essential The baggage master reports directly to the general wharf superintendent If the line is of importance in the passenger trade, he will have an assistant to whom the baggage clerks report One baggage clerk is assigned to each class of passengers carried, and longshoremen are employed to load and unload trunks and other heavy baggage under the direction of the clerks, while hand luggage is cared for by the ship stewards

Timekeepers are employed at each pier to keep an accurate record of hours worked by all non-salaried employees Their work with some lines is complicated by the accounting department requirement that they charge labor time against many items according to the system of cost accounting in effect In addition to making up pay envelopes from their records of hours worked by employees, they may be required to report upon accidents and act as safety supervisors

The protection of valuable merchandise of all kinds on steamship piers compels steamship companies to maintain a detective force to prevent pilferage The force is not large, but it must be sufficient to safeguard valuable goods, particularly after working hours, and to observe the actions of employees many of whom belong to the floating labor supply of the port

FOREIGN OFFICES AND AGENCIES BRANCHES AT OUTPORTS

When the activities of a shipping company are such that a large share of its ships sail regularly between two or a limited number of ports, it is advisable to establish branch offices at these ports to perform the services that are entrusted to the operating department at the home port In organization, they are similar to that of the home office, but on a much smaller scale In this manner, supervision of operating details is placed in the hands of responsible employees who report to and are directed by the general manager of operations or an assistant in charge of branch offices However, the establishment of branches is exceptional and most steamship lines enter into agreements with properly qualified agents abroad and at outports who perform similar services for other companies As representatives of a number of companies, steamship agents are able to maintain a

staff of specialists who are thoroughly familiar with all phases of steamship operation and traffic development Unless vessel arrivals of a company are quite numerous and regular at a given foreign or domestic port, branch offices are more costly and frequently less efficient than steamship agencies²

CONSTRUCTION CHARTERING

Additions to the fleet of a steamship line are made by constructing new vessels and by purchasing or chartering ships from others Smaller companies have little or no need for a construction department because of the limited number of vessels operated Larger shipping combines operating a great many vessels sometimes find it advantageous to include in the operations department a chief of construction with an assistant and several draftsmen and clerks They are concerned with the planning and building of new ships needed to replace obsolete ones or to provide additional cargo or passenger space necessary to accommodate an increased volume of traffic Characteristics such as size, cargo and passenger capacity, and speed of new vessels are determined in cooperation with officials of the passenger and freight traffic departments, but problems involving design, propulsion, and construction are responsibilities of the chief of construction and his staff During the period of construction a certain amount of authority to supervise and inspect is entrusted to those departments

Loss or scrapping of vessels, repairing and reconditioning of vessels, or increases in traffic sometimes make necessary temporary additions to the company fleet It becomes the duty of the manager of the chartering department to secure at a fair cost a vessel suited to the needs of the line Should his company have an excess of vessel tonnage, his position is reversed The details of chartering will be found in Chapter XII

In any discussion of the activities of the operations department ashore or afloat, it should be remembered that there is no standardized procedure or organization Variations in both of these are always found Influences exerted by climate, national customs, size of the fleet, and characteristics of the traffic carried are examples of forces that make for dissimilarity in or-

²See Chap. viii.

ganization and administration. However, the foregoing tasks are essential, and the organization may be considered typical for a large line. Greater concentration of authority will be found in smaller companies with a number of functions performed ashore on a commission or contract basis by specialists who serve other companies in a similar capacity.

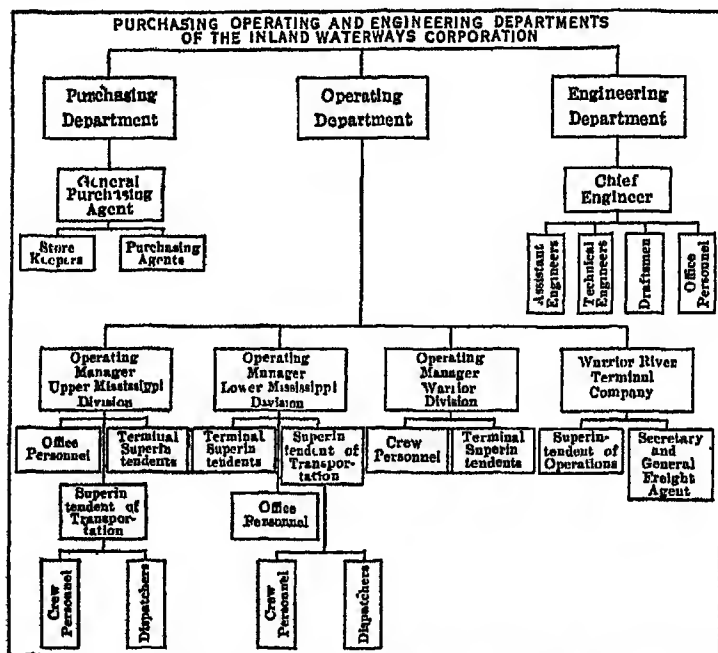
OPERATING DEPARTMENT OF THE INLAND WATERWAYS CORPORATION

Comparatively few of the transportation companies operating on rivers of the United States are common carriers. The great majority have been established as industrial lines serving the coal and steel industries, or local sand and gravel companies. While it is true that a number of the industrial lines approach, and sometimes exceed the purely common carriers in size, the operating organization of the Inland Waterways Corporation is perhaps most satisfactory as an example of large scale operation on American rivers, because it is the largest of the common carriers and offers the most extensive service available on any rivers in this country.

In many respects, the operating organizations of inland waterway companies resemble those of ocean shipping lines. Concentration of authority and simplicity in the organization are more pronounced than in ocean shipping for a number of reasons. Operating units are fewer in number and are confined to domestic waterways, cargo stowage is a less complicated task, foreign competition is absent, passengers are not carried, and fewer employees are found in even the largest of the barge lines. The accompanying chart of the Inland Waterways Corporation cannot be considered as typical of barge lines on the Mississippi and tributaries, but it permits comparisons with operating departments of ocean shipping lines, and shows to what extent the pattern of the latter has been followed by the largest of the important inland barge lines.

The Inland Waterways Corporation is divided into four operating divisions one of which is the Warrior River Terminal Company in charge of the terminal railroad operated in connection with the Warrior River barge division. Activities on the Mississippi proper are supervised by an operating manager for

each of the two divisions, upper and lower, with headquarters at Minneapolis St Paul and St Louis Division managers report directly to the president of the corporation The regulations instruct the managers, under the direction of the president, to "operate vessels and all other transportation facilities, supervise radio equipment, freight movements, and tow schedules, employ, discharge, and superintend boat personnel, and co-



FORM 7 PURCHASING, OPERATING AND ENGINEERING DEPARTMENTS OF THE INLAND WATERWAYS CORPORATION

ordinate all functions of operation upon his division" In addition to office personnel, each division manager is assisted by a superintendent of transportation and by pier superintendents To the former, the manager delegates extensive authority over freight movements, tow schedules, and boat personnel Although few river terminals are owned by the Barge Line, the operation and ordinary maintenance of important facilities require the services of pier superintendents whose duties, although

less involved, compare roughly with those of pier superintendents at tidewater ports

The engineering and purchasing departments are not included in the operating organization and function as separate corporate divisions. However, the purchasing agent is authorized to delegate, with the approval of the president, terminal superintendents or other responsible employees as assistant purchasing agents, with authority to contract locally for supplies. Appointments of such assistants usually follow recommendations made to the purchasing agent by the division operating managers. The duties of the chief engineer differ radically from those of the superintendent engineer in the employ of an ocean steamship company. In the Barge Line organization, jurisdiction over deck and engine room employees rests with the superintendent of transportation, but maintenance and repairs of all kinds to terminal or floating equipment are made by the engineering department which is further charged with the preparation of designs, plans, and specifications for the construction of towboats, barges, terminals and terminal equipment. Due to the revival of interest in river transportation, problems of design are especially important. Equipment of the type used in the last century at the height of inland waterway navigation is now obsolete. The towboat and barge have replaced the old type packet boat common before the decline of river traffic, and, as a result, the development of efficient modern units has not had the benefit of precedent. Ample funds at the disposal of the Inland Waterways Corporation have permitted it to take the initiative in the construction and operation of floating equipment that is probably unexcelled anywhere. Their success in towboat design is largely responsible for the building of many new units by other companies which were unable or had not seen fit to experiment on their own account. Terminal development on the Mississippi has progressed rapidly during the past decade. Of the modern terminals available to the shipping public, many have been built with the aid of the Inland Waterways Corporation. From 1921 to 1932, the Corporation had made loans in excess of \$1,000,000 for terminal construction by municipalities and others.

OPERATING DEPARTMENT OF GREAT LAKES SHIPPING COMPANIES

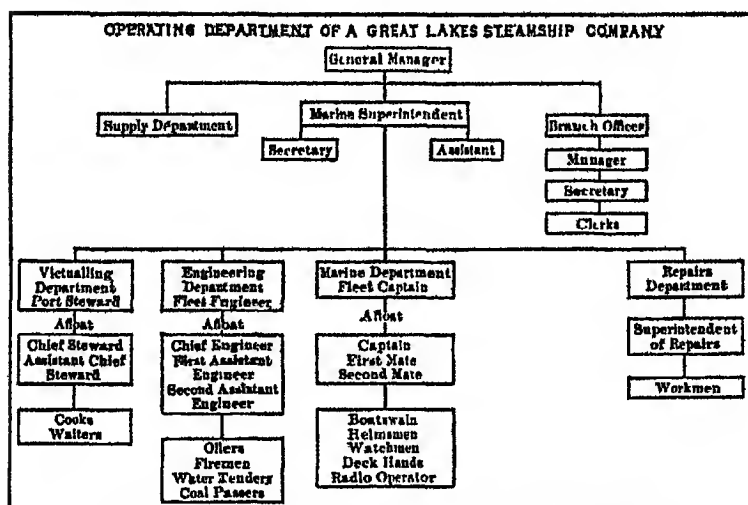
In many respects, problems of vessel operation on the Great Lakes are similar to those encountered by ocean shipping companies. In length, power, and capacity, the modern lakes vessel engaged in the bulk cargo trade probably exceeds the average ocean going freighter. Contrasts in the problems of operation arise mainly from the following characteristics of trade on the Great Lakes.

1 Bulk cargoes account for more than 95 per cent of the traffic. In handling ore, coal, grain, stone, and other commodities that move in large quantities, loading and unloading machinery have displaced the longshoreman and most of the other employees found in the wharf department of an ocean shipping company. The paper work involved in handling thousands of individual shipments at ocean ports does not exist. This phase of operation is further simplified by the fact that a larger part of the lakes traffic is cargo owned by the vessel operators. Shipper-carrier obligations thus are not so generally assumed.

2 Most ships are engaged in domestic commerce over comparatively short routes. Foreign offices and agencies with accompanying problems of supervision are eliminated. Domestic operation simplifies the purchasing of food, engine room and deck supplies, repairs to vessels, and all phases of operation that become more complex with entries at foreign ports and increased distance from the home office, including exemption from a number of provisions of the navigation and customs laws of the United States Government.

The accompanying chart is taken from the organization of one of the larger independent bulk cargo carriers which has been modified during the depression. Laid up vessel tonnage and enforced economy have resulted in a further centralization of authority which is characteristic of Great Lakes operation in normal times. The duties of the marine superintendent are similar to those of the manager of operations in ocean shipping companies. In this instance, however, purchases of supplies other than provisions, and supervision of branch offices are responsibilities of the general manager. Employees ashore are not numerous.

for reasons mentioned above. Close supervision by the marine superintendent is made possible by the ease of communication with vessels, and, in general, greater individual responsibility rests with him because of the comparative simplicity of the departmental organization. It will be noted that the wharf department is omitted entirely because package freight is not accepted for carriage. In handling of bulk cargo, longshoremen, checkers, delivery clerks, and other employees of the wharf department are unnecessary.



FORM 8 OPERATING DEPARTMENT OF A GREAT LAKES
STEAMSHIP COMPANY

There are a few passenger and packet lines in operation on the Great Lakes, and in those organizations provision must be made for the handling of merchandise freight and for a victualling department adequate for the supervision of purchasing, preparation, and serving of food when passengers are carried. Wide spread ownership of wharves and other terminal facilities by railroads relieves the package freight lines of many duties ordinarily assumed by the wharf department of an overseas shipping company.

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CHAPTER XVI

MARINE INSURANCE

MARINE insurance makes possible the economical operation of ocean shipping and the conduct of commerce requiring the shipment of commodities by ocean carriers. The ocean carrier is subject to the many "perils of the sea" that may cause his ship to be damaged or lost, and if the ship's cargo does not reach its destination, the owner of the ship may lose not only the value of his vessel in whole or in part but also the "freight money" or the vessel earnings in so far as they were not obtained from shippers who prepaid the freight charges. The carrier transfers these risks to other shoulders by obtaining adequate insurance from one or more companies covering "hull" and "freight money."

The shipper of goods by sea incurs much greater risk of loss than does the shipper by rail. By the railroad bill-of-lading contract, the railroad company must make good to the shipper all loss and damage to goods transported except such losses and damages as are due to unforeseeable causes beyond the carrier's control—"acts of God"—such as earthquake, fire, or flood, and except such other contingencies as are specified in the laws governing railroad liability. Losses due to such causes are very rare, and the shipper by rail secures from the carrier the protection from loss which the shipper by sea must obtain by marine insurance.

The liability of the ocean carrier of freight shipped from the ports of the United States is limited by the Harter Act of February 13, 1893, to (1) "negligence, fault or failure in proper loading, stowage, custody, care or proper delivery" of cargo, (2) failure "to exercise due diligence, properly to equip, man and outfit" the vessel, and (3) failure to exercise due care in making the vessel "seaworthy and capable of performing her intended voyage." The manifold risks of loss or damage that

cargo may suffer in transit from shipper to consignee the ship per must needs cover by marine insurance

The subject of marine insurance is a large one and has many phases. In order to keep this exposition within required limits, it will be necessary to make the discussion rather brief and to include only the more important aspects of vessel, freight money, and cargo insurance, and to refer to but a limited number of marine insurance policies¹

RISKS TO VESSELS AND CARGO COVERED BY MARINE INSURANCE

An enumeration of the principal risks to which ocean vessels and cargo are subject, will indicate the scope and importance of marine insurance. Some of the risks are covered by insurance on the vessel, i e, by "hull insurance," others are covered by cargo insurance, while most of the "perils or risks" are common to both vessel and the lading

1 First of all, marine insurance is obtained by vessel and cargo owners to cover the "perils of the sea," and these perils were long ago listed as follows in the standard policy adopted by Lloyd's Association of Underwriters in phraseology that now seems quaint but which is included in all insurance policies because the meaning of all phrases has been definitely determined by legal decisions

Touching the Adventures and Perils which we the Assurers are contented to bear and do take upon us in this Voyage, they are, of the Seas, Men-of-War, Fire, Enemies, Pirates, Rovers, Thieves, Jettisons, Letters of Mart and Countermart, Surprisals, Takings at Sea, Arrests, Restraints and Detainments of all Kings, Princes, and People, of what Nation, Condition, or Quality soever, Barratry of the Master and Mariners and of all other Perils, Losses, and Misfortunes that have or shall come to the Hurt, Detriment or Damage of the said Goods, and Merchandise and Ship, etc or any part thereof

The losses due to "perils of the sea" include all those caused by storm, fogs or lightning, by icebergs, derelicts or other marine obstructions, by stranding, foundering, collision with other vessels or with marine structures, or by unavoidable damage to

¹The student desiring a more comprehensive and detailed treatment of the subject will find it in the volumes listed in the References at the end of this chapter, especially in Prof S S Huebner's volume, *Marine Insurance* (1920), and in Chap's xxi to xxvii inclusive of his book, *Property Insurance* (1922)

property resulting from the elements, but, as the list in the quotation from Lloyd's policy shows, the adventures and perils which the assurers are contented to bear comprise, in addition to the ordinary perils of the sea, several other risks including

2 Losses caused by fire, which is a peril separately listed in insurance policies, it being a peril *on* the sea but not *of* the sea. The assurers are liable not only for the actual destruction of vessel or cargo by fire but also for property losses resulting from heat, smoke or odor, or from water, steam, or chemical gases used to quench the fire.

3 Jettison, or the throwing overboard of part of a cargo or casting away the masts, spars, rigging or fittings of vessels for the purpose of lightening or relieving the ship, in case of storm or accident, for the common good.

4 Barratry, which is a risk that is usually covered by marine insurance. "It includes all forms of fraud and knavery on the part of the vessel's master or crew, such as wilful scuttling or abandonment of vessels or theft of cargoes."²

5 Theft, or robbery by force, is regularly covered by marine insurance but not clandestine thievery or pilferage. Losses caused by "pirates and rovers" were frequent up to the nineteenth century and are thus listed in Lloyd's standard insurance policy. Pirates still ply their vocation off the coast of China. Claims covering pilferage are now commonly included in marine insurance policies, and special non-delivery clauses may also be included to cover the risk of error in delivery, of failure to load freight, or of clandestine theft of an entire package.

6 War risks in general are included among the perils that "the assurers are contented to bear," but during a war between or among maritime nations, such as the recent World War, special provision must needs be made to cover war risks. The United States Government established a Bureau of War Risk Insurance that functioned during the World War.

7 Risks due to strikes and lockouts are usually excluded from regular policy forms, but may be included by inserting a clause waiving the usual strike and lockout clause and requiring payment of additional premium.³

² G. G. Huebner, and R. L. Kramer, *Foreign Trade* (1930), p. 690.

³ *Ibid.*, p. 690.

8 Risks on land and shore, and the desire of many shippers to insure their goods wherever they may be during the period of transportation have greatly increased the scope of marine insurance. It is coming to be the practice to insure cargoes against specifically named risks while on wharves, motor trucks, railroads, or elsewhere on shore, and even against all risks of transportation between point of shipment and destination, certain specified risks being excluded. A "warehouse to warehouse" clause is frequently included and thus a marine insurance policy covers the goods from the shipper's warehouse at the point of shipment until they are delivered at the consignee's warehouse at destination.⁴

KINDS OF LOSSES AND OF LIABILITY THEREFOR

The main kinds of losses and liability therefor resulting from the risks or perils that have been described and against which vessel owners and shippers seek protection by means of marine insurance are the following:

1 Total loss, "actual" and "constructive," of vessel, cargo, freight money, profits or other insurable risk. When the property insured is totally destroyed or is so damaged as to be of no practical value to the insured, there is an "actual total loss." Moreover, the property may be but slightly damaged, but may by the stranding of a vessel or otherwise be so placed as to be of no further value to the insured, who has thus suffered a "constructive total loss."

2 Partial loss may be incurred. Such a loss may be covered by a "general average" or a "particular average" rule. The maritime laws of nations ordinarily provide that any loss resulting from a deliberate sacrifice of vessel, cargo, or other property for the common safety and welfare should not be borne entirely by the particular owners of the sacrificed properties, but should be fairly prorated among all interests that benefited by such sacrifice. This is the rule of "general average" that is regularly included in marine insurance policies.

The "particular average" rule for the settlement of losses applies when the property insured is damaged by accident, no

⁴ *Ibid.*, p. 690. Also R. Ruegel and H. J. Loman, *Insurance Principles and Practices*, p. 279.

element of sacrifice for the common good being present The owner or insurer must alone bear the loss Marine insurance policies, however, usually cover such losses only in part, no payment being made to the owner unless the particular average loss exceeds a stipulated percentage of the value of the insured property Full insurance against such a loss may, however, be obtained upon the payment of a premium sufficient to cover the risk assumed by the insurer

3 Salvage payments made to those who save life and property at sea must be paid by the owners or insurers of the vessel and cargo to which assistance was given Such payments may be collected by legal process if not voluntarily made

DEVELOPMENT OF MARINE INSURANCE

Marine insurance has had a long development, but it will suffice for the purposes of this discussion to refer only to the evolution of methods and practices as they have evolved in England and the United States While marine insurance has had an indigenous growth in all maritime countries, its development everywhere has been determined more by Lloyd's rules and practices than by any other influence The underwriters who united to form the association that in time became the present corporation gave marine insurance a solid foundation and adopted methods that made possible the extensive services it now renders

Edward Lloyd, in the middle of the seventeenth century, conducted a coffee house in Tower Street, London, which became a regular meeting place of underwriters, ship owners and overseas shippers, because Lloyd had developed an extensive system of home and foreign correspondence by which he was kept informed concerning the movements and condition of vessels engaged in commerce in various parts of the World About 1691, Lloyd's location was changed to Lombard Street In course of time, the underwriters, having increased in number, formed Lloyd's Association of Underwriters, which in 1774 occupied the Royal Exchange of London which has ever since been a center of marine insurance, not only for Great Britain but for the world In 1871, the association by incorporation became the Corporation of Lloyd's

The Corporation of Lloyd's as such does not write insurance, it is composed of individual underwriters (not stock companies) each of whom does business in an independent capacity but in accordance with the rules prescribed and enforced by the corporation. Each of the several hundred underwriters has a desk in the Royal Exchange, and the insurance broker of the underwriter who desires to place a risk places before other underwriters a "slip" or statement of essential particulars, and such underwriters as may desire to participate in the risk, individually or by groups of underwriters, initial the slip and state the amount they are willing to underwrite. The amount thus assumed by any individual underwriter is small, and the total risk is divided among a large number. The interested broker next presents to the participating underwriters the "long slip" containing the detailed information as to the proposed policy, after which the policy stating the amount of risk assumed by each participant is made out by the broker and signed by the several underwriters. A central office facilitates the issuance of the policies.

Lloyd's Corporation not only acts as an insurance exchange, but also collects and publishes the information essential to intelligent underwriting. It has agents at the principal ports of the world from whom it receives maritime news by cable. Such news is distributed to Lloyd underwriters and to such insurance companies as carry subscriptions. The daily press is also given its appropriate part of the news. The following publications are issued by the Corporation: *Lloyd's List* in which current shipping news is published daily, *The Index* in which information concerning particular vessels is posted, a *Register of Captains* which sets forth the service records of the masters of British vessels, and a *Record of Losses* or the "black book," as it is popularly called.

Marine insurance as now carried on would be impossible without the assistance rendered by classification societies. In each important maritime country there is a classification society, the three most important societies being The Society of Lloyd's Register which publishes *Lloyd's Register of British and Foreign Shipping*, the Bureau Veritas of France, and the American Bureau of Shipping which publishes the *American Record*,

Classification societies issue rules to be followed in the construction of vessels and enforce these rules by employing surveyors to inspect vessels as they are constructed or altered, and by assigning vessels a class and rating in the registers they publish. These registers, of which *Lloyd's Register* is the most comprehensive, give for each vessel listed a rating by "class" and data as to date and place of construction, dimensions, owners, port of registration, kinds of engines and other information which an underwriter needs to know in deciding whether to participate in placing insurance upon the vessel.

As the "class" assigned a vessel by a classification society and the other data presented in a register do not give the insurer all the information needed, underwriters, through their associations, employ surveyors to make current surveys of vessels seeking insurance, and boards of marine underwriters are organized to formulate rules for loading grain, iron, coal, petroleum, etc., to inspect the stowage of cargo aboard vessels, to survey damaged goods and make reports upon losses. Salvage associations take charge of, or make arrangements for, the salvaging of vessels and cargo.

In addition to the plan or type of marine insurance that has been developed by Lloyd's Association, and its successor, The Corporation of Lloyd's, there is insurance by stock companies, by mutual companies, by Lloyd's Associations that are located in different parts of the world and that transact business through an attorney, by governments, and by "self-insurance." There are also ship-owners' mutual associations, or clubs that provide insurance by periodic assessments, usually once a year, upon the members to cover the marine losses of those belonging to the organizations, but that method of protection has not been adopted to much extent.

Marine insurance is now being done more and more by large stock companies instead of by individual underwriters or associations of underwriters. Such stock companies have had a large development in London, Glasgow, and Liverpool. By means of subscriptions to Lloyd's, which has a world-wide organization for securing data regarding ships, the stock companies obtain much of the information they require in the conduct of their business. Most marine underwriting in the United States is done by stock

companies The methods followed by mutual companies in the conduct of marine insurance are like those followed by such companies in other fields of insurance Individual marine underwriters in different countries form associations and transact business according to the rules that have been developed by Lloyd's Their attorney can represent them at Lloyd's in London

To reduce the amount paid in premiums, some large companies with a large number of vessels, such as the United Fruit Company, the International Mercantile Marine, and the Hamburg-American, for instance, build up and invest insurance funds to draw upon to meet in whole or in part their marine losses As Professor S S Huebner states:⁵

Sometimes the plan includes all the risk of the owner, but this should be the case only where the separate items of property are sufficiently numerous and approximately evenly distributed in value In all other cases some vessels are insured under the self-insurance plan, and others, usually the more costly, with outside insurers Sometimes, one or more or all of the vessels are protected with outside insurance up to a certain amount, and the balance is assumed by the owner himself In the case of vessels of great value, the owner may first assume all loss up to a fixed amount, like \$200,000 or \$300,000, the outside underwriter's liability attaching only for the excess

Various other special arrangements may be made by owner and insurer as to the kind and amount of losses each shall bear

Government insurance of vessels and cargo becomes necessary to cover war risks During the World War, eleven countries established war risk bureaus The Bureau of War Risk Insurance of the United States Treasury Department was created September 2, 1914, and on June 12, 1917, provision was made for insuring vessels of friendly flags and the cargoes being transported The United States Shipping Board and the Emergency Fleet Corporation also insured the vessels that the United States owned and was operating The successor of the Emergency Fleet Corporation, the Merchant Fleet Corporation, now operates a marine insurance fund that was created January 1, 1930, but it has been the policy of the Corporation since the beginning of 1932 to encourage those purchasing Shipping Board vessels to place insurance in the commercial American market,

⁵ *Marine Insurance*, p. 30.

although "Assistance has been rendered owners of vessels purchased from the Shipping Board, as well as owners of vessels constructed or reconditioned with the aid of loans obtained from the construction loan fund, by accepting in the marine insurance fund, insurance in excess of the capacity of the private American market and insurance for which satisfactory rates were not obtainable in such market" ⁶

MARINE INSURANCE IN THE UNITED STATES

Marine insurance in the United States has been developed and is now carried on mainly by stock companies. The business has grown slower and has been of much smaller volume in the United States than in Great Britain. London had the lead, and as British shipping far exceeded the shipping of any other country, marine underwriting naturally centered largely in Great Britain. Moreover, the American merchant marine in the foreign trade during the long period from the Civil War to the World War declined to a relatively small tonnage total because ocean transportation could be performed at less cost by vessels under foreign flags than under the American flag. This placed marine underwriting in the United States under a heavy handicap. It will be well to refer briefly to the four periods into which the history of marine insurance in the United States may be divided and to consider the changes that are now taking place.

1 Until 1794, such marine insurance as was written in America was by individuals or partnerships, and not by corporations. The first insurance office opened by any individual in the American colonies seems to have been started in Philadelphia in 1721. The first office in New York was opened in 1759. The business done in Philadelphia, New York and Boston, however, but partly supplied the demand for marine insurance in America. Most persons desiring to secure insurance were obliged to apply to the London underwriters.

2 The second period in the history of marine insurance in the United States began in 1794, at which time the General Assembly of Pennsylvania gave a charter to the Insurance Com-

⁶ Seventeenth Annual Report of the United States Shipping Board, fiscal year ending June 30, 1933, p. 62.

pany of North America, a company that had been carrying on business without incorporation for two years. This was followed by the incorporation of numerous companies in Pennsylvania and other states. The fifteen years from 1790 to 1805 were years of prosperity for the American merchant marine, and 32 insurance companies were incorporated prior to 1800. These years of prosperity were unfortunately followed by several years of heavy losses, from 1807 to 1815, when the Napoleonic wars in Europe and the War of 1812 in the United States almost paralyzed the international carrying trade of American vessels.

With the restoration of peace in 1815, the American marine revived, but the insurance business was not immediately restored to prosperity, because of the unextinguished rivalry of the numerous companies engaged in underwriting. There was not enough business to enable the many insurance companies to prosper, indeed, it was not until 1840 that their business in the United States again began to flourish. Then followed the two decades preceding the great Civil War, the golden age of marine insurance in the United States.

3 With the Civil War began the third period in the history of marine insurance in the United States—a period of steady and disheartening decline. The four years of the Civil War placed such a heavy strain upon most insurance companies that only the strong ones were able to survive. Had the marine under the American flag in foreign commerce been prosperous after the Civil War, the marine insurance business would probably have again flourished in the United States, but as the tonnage of American oversea shipping continued its decline the business of marine underwriting in the United States fell off.

Two other causes should be noted. (1) When iron vessels came into use about the middle of the nineteenth century, Lloyd's Association gave them a higher rating than wooden ones. The effect of this was to favor British shipping, because for some time most of the iron vessels of the world were under the British flag. (2) Foreign underwriters, prosperous at home, took away from American underwriters the business of insuring American shipping and commerce. In 1871, there was only one foreign company doing marine underwriting in New York, three years later the number of foreign companies had increased to seven,

and in 1914, 32 foreign companies of several nationalities were conducting a marine insurance business in New York and elsewhere. Such marine insurance in the United States as was not provided by foreign insurance companies and underwriters was handled principally by nine⁷ American companies most of whom were engaged primarily in fire insurance, only two of them conducting an exclusively marine insurance business. Twenty-two additional American companies insured marine risks in New York in 1914, but their marine business was not large, and all but two of them were interested principally in fire insurance.⁸ A limited amount of marine insurance business was also written by other American underwriting concerns and by navigation companies themselves through self-insurance plans. Marine insurance in the United States had ceased to be prosperous.

4 The fourth and present period of the development of marine insurance in the United States began with the World War, when the war risks incurred by American vessels and their cargo could be covered by government insurance. There were eleven countries which provided war risk insurance. Several governments, notably the United States, by requisition, purchase, or construction, became possessors or owners of a large tonnage of ships operated for or by the government. A month after the beginning of the World War, September 2, 1914, Congress provided for the creation of the Bureau of War Risk Insurance in the United States Treasury Department. By this Act, as it was extended by the Act of August 11, 1916, the government provided war risk insurance of vessels and freight under the American flag, and on July 11, 1918, further broadened the Act to extend protection to vessels of foreign registry when chartered or operated by the United States Shipping Board or its agents or when chartered by an American citizen.

The United States Shipping Board, September 28, 1917, created an Advisory Insurance Committee, and the following year, October 9, 1918, substituted therefor a Division of Insurance.

⁷ The Insurance Company of North America, Providence; Washington Company, St. Paul; Fire and Marine Company, Boston; Insurance Company, Federal Insurance Company of Jersey City, Atlantic Mutual Insurance Company, Firemen's Fund, Aetna, and the Home Insurance Company.

⁸ For list of American and foreign companies then engaged in marine insurance in New York, see Annual Report of the Superintendent of Insurance of New York (1914), pp. 52-65.

The committee and its successor provided for marine and war risk insurance of the large and rapidly increasing fleet owned by, and operated by or for, the Shipping Board, and also insurance upon freight carried at the risk of the Shipping Board and the Emergency Fleet Corporation. Important salvage operations were carried on. A fund of \$10,000,000 was set aside by the Shipping Board, but the premiums collected covered the losses, and it was not necessary to draw upon this special fund. After the Armistice was signed, it soon became unnecessary to cover war risks, but the Board set aside a reserve, created an insurance department in 1921, and marine insurance was continued by the Shipping Board. Insurance has been provided by the Merchant Fleet Corporation as directed by the Shipping Board under authority of the Merchant Marine Act of 1928.

During the fiscal year 1932, the Shipping Board adopted the policy of encouraging those who might obtain government insurance to place marine insurance in the American commercial market, and in some instances the placing of insurance with foreign underwriters was approved. On June 30, 1934, the coverage of the Shipping Board Marine Insurance fund applied to 99 privately owned American flag vessels, and 50 vessels operated in Fleet Corporation services. The total marine insurance thus carried amounted to \$36,927,171 which was about one-third less than the amount one year previous.

The mercantile marine policy that was adopted by Congress after the World War was embodied in the Merchant Marine Act of June 5, 1920, which supplemented the Shipping Act of 1916. Section 29 of the Act of 1920 made it possible for companies engaged in marine insurance in the United States to cooperate in the conduct of their business by forming associations, it being provided that the antitrust laws should not "be construed as declaring illegal an association entered into by marine insurance companies for the following purposes: To transact a marine insurance and reinsurance business in the United States and in foreign countries, and to reinsure or otherwise apportion among its membership the risks undertaken by such association or any of the component members."

This legislation by Congress was followed by the joint action of 50 American insurance companies whereby they formed three

syndicates "Syndicate A" was organized to supply at cost a surveying, inspection and loss service for Shipping Board and privately owned vessels "Syndicate B," which "was composed entirely by American companies and comprised practically all American underwriters, was created for the special purpose of insuring (up to \$2,000,000 upon one vessel) the government's equity in vessels sold upon the partial payment plan"⁹ "Syndicate C" was organized to write hull insurance upon privately owned ocean steel vessels, the maximum amount upon one vessel to be \$2,500,000 This syndicate includes not only American insurance companies but also foreign companies that have been admitted to do business in the United States, the participation of the foreign companies being limited to approximately one-third of the syndicate's capacity Syndicates A and B are composed entirely of American companies

The legalization by the United States government of marine insurance associations, and the action taken by American companies in organizing the syndicates were important steps helpful to marine insurance in the United States, but they only partly solved the problems Marine and other insurance companies being chartered by the states are subject to regulation and taxation by the states, and the laws of the states placed marine insurance companies in the United States under a heavy handicap in competing with marine underwriters in foreign countries In 1920, fully two thirds of the marine insurance written in the United States was by foreign companies The facts as to the condition of marine insurance in the United States were investigated by the House of Representatives Committee on Merchant Marine and Fisheries and the United States Shipping Board with the assistance of Professor S S Huebner The results of the investigation and the recommendations of the committee and board were presented by Professor Huebner in a special "Report on Legislative Obstructions to the Development of Marine Insurance in the United States," published December 11, 1920

This report made by the Shipping Board and the House Committee pointed out the necessity of five changes in the insurance

⁹ Sixth Annual Report of the United States Shipping Board (1922), p 88

laws of the states, changes that must be made to enable marine insurance underwriting to be carried on advantageously in the United States. These changes were (1) greater freedom on the part of American companies to cooperate through syndicates without violation of state laws, (2) taxes based on net profits instead of upon premiums, (3) permitting companies to engage in other kinds of insurance as well as marine underwriting, (4) liberalization of state laws to permit greater freedom in reinsuring risks, and (5) "removal of limitations on the financial powers of companies that hamper operations in foreign fields."

To provide a legislative model for the states to follow and to give them an incentive to act, Congress enacted, for the District of Columbia, a marine insurance law, approved March 4, 1922, that embodied the principles recommended in the Report of December 11, 1920. This was followed by effort on the part of government authorities to persuade insurance and commercial organizations to take the lead in bringing about legislation by the states similar to the Federal law for the District of Columbia. Several states have made changes in their marine insurance laws since 1922. Oregon has adopted the Federal law in full.

It was not expected that the states would generally repeal their marine insurance laws and substitute therefor the provisions of the Federal law, but that the states would gradually bring their laws into harmony with the Federal statute for the District of Columbia, and this is taking place. Wisconsin and Connecticut have made multiple line insurance possible, and the much more important principle of basing taxes paid by marine insurance companies on their profits instead of upon their gross premiums has been adopted not only by Oregon but by New York, Pennsylvania and New Jersey, in which latter three states about 90 per cent of all the marine insurance business done in the United States is transacted.

Marine insurance in the United States, both on vessels and on cargoes, is now written mainly by American companies. The United States Shipping Board in a survey made for 1932 received reports from 65 domestic companies and 24 foreign admitted companies. The total amount received that year by American companies as premiums on hull and cargo insurance

written was \$38,873,000, from which the companies paid out for reinsurance with foreign companies \$13,007,000. The original premiums remaining with domestic companies thus amounted to \$25,866,000 for the year 1932. During the same year, foreign companies doing business in the United States received premiums on marine insurance amounting to \$12,933,000 from which they paid \$6,287,000 for reinsurance, thus making their net premium receipts \$6,646,000. The sum of the net marine insurance premiums received by American and foreign companies in 1932 was \$32,512,000. The depressed condition of shipping that year is shown by the fact that the corresponding total for 1929 was \$60,442,000, or nearly twice as much as the sum for 1932.

The organization of Syndicate C by American marine insurance companies has been of great assistance to them. When the syndicate was formed after the Merchant Marine Act of 1920 became a law, American companies did not write more than one-fourth of the hull marine insurance originating in the United States, whereas in 1932 American companies had nearly four-fifths of the business. This would not have been possible without Syndicate C, although the business was not all done by syndicate companies. The success which the American companies composing Syndicate C have had in writing hull insurance has also assisted them in securing a larger share of other kinds of marine insurance written in the United States—cargo insurance, builders' risk insurance, and protection and indemnity insurance, of which last-mentioned type of insurance, American companies now have about three fourths of the total.

One interesting development since 1914 that is of significance to American marine insurance as well as to American shipping has been the reorganization and growth of the American Bureau of Shipping and its supplanting of Lloyd's as the leading vessel classification society in the United States. This American classification society which was incorporated in 1862 had decreased in importance with the long decline in the American merchant marine after the Civil War, but after the World War had been in progress for a year, a movement was started which resulted in the reorganization of the American Bureau of Shipping, March 1, 1916. The Bureau received the support of American shipbuilders, repairers, underwriters, and vessel owners in the

United States and was engaged to classify vessels being built by the Shipping Board. The result was that the percentage of American built vessels classified by the American Bureau rose from 8 per cent in 1916 to 68 per cent by July, 1919, the remaining 32 per cent being classified by Lloyd's and the Bureau Veritas. Congress also came to the support of the American Bureau by including in the Merchant Marine Act of 1920 (Section 25) the stipulation that "all departments, boards, bureaus, and commissions of the government are hereby directed to recognize the American Bureau of Shipping as their agency so long as the American Bureau of Shipping continues to be maintained as an organization which has no capital stock and pays no dividends." The American Bureau of Shipping acts for Lloyd's Corporation in America, and Lloyd's for the American Bureau in Great Britain. Similar arrangements are made with classification societies in other countries. Thus the dual classification of a vessel can be secured at but little more expense than the cost of a single classification. This is of advantage to vessel owners in securing marine insurance.

GENERAL TYPES OF MARINE INSURANCE POLICIES

As has been stated, marine insurance is written to cover three general kinds of losses, those connected with the vessel, the cargo, and freight charges. Policies are thus written for "hull," "cargo," and "freight" insurance, and there are many kinds both of hull and of cargo policies. There are, however, certain characteristics that pertain to both hull and cargo policies.

First of all, the policy may be "valued" or "unvalued", i. e. the total amount of risk assumed by the insurer, in case of a total loss of the cargo or vessel insured is stated in the policy, or the fixing of the value of the insured property is left to be determined at the time of loss or damage. In case of a partial loss or damage, the amount of insurance payable must in any event be ascertained by the usual method of adjusting losses. In marine insurance, most policies are "valued."

There are also "voyage" and "time" policies, one of which, as the terms indicate, covers risks that may be incurred in a one-way or round trip voyage, while the other provides insurance for a stated period of time without regard to the number of

voyages that may be made during that period. Voyage policies are especially applicable to individual cargo shipments whereas time policies are especially adapted to vessels employed in regular trades.

Another characteristic of marine insurance policies is that they may be either "interest" policies or "policy proof of interest" policies. In general, a marine insurance policy is valid only when the insured has an insurable interest in the actual property insured. If he has such a definitely definable interest an "interest" policy can be written. It may, however, be the desire of the insured to secure protection against possible losses that cannot be so defined—losses that he might incur if duty free articles are made subject to duty, or losses due to a declaration of war, or loss of the carrier's freight earnings, or the loss by the shipper of prepaid freight charges that might result from a marine disaster. To cover such indefinite losses the insurer may issue a policy that is itself proof of the insured interest. This is done by such a notation upon the policy as "policy proof of interest," or "without further proof of interest than the policy itself."

HULL INSURANCE POLICIES

Insurance upon vessels, "hull" insurance as it is termed, requires the use of policies of several kinds. Vessels are of several types and of many different uses. Thus hull insurance policies may be labeled "steamboat only," "tug," "barge," "canal hull," "lake hull," "river hull," "lighterage," "Great Lakes and river traffic," "whaling and fishing," "yacht," etc. All of these policies have essential features in common and may have the same general form. Their important differences are indicated by the particular clauses added to individual policies to adapt them to the risks peculiar to the several trades or services in which vessels are employed.

Ordinarily each vessel is separately insured, but as the fleets operated by single companies have come to be large, there has been a demand upon the part of some large companies for fleet insurance covering all vessels, old and new, operated by the company seeking insurance. In this way an insurance policy may cover millions of dollars' worth of property, and the risk may be borne by a score or more of participating insurance

companies. Indeed, an insurance broker doing business on a large scale may combine more than one fleet in a single insurance account and require the companies underwriting the insurance to assume the combined risk. When insurance covers an entire fleet, or more than one fleet, it is possible to insure, along with newer vessels of a high class, older vessels of a low grade for which insurance could be secured, if at all, with difficulty or at high rates. Moreover, the cost of fleet insurance will probably be less than the aggregate cost of insuring individually the vessels composing the fleet or fleets insured.

A marine insurance policy may be "full form," and provide coverage fully for partial losses and for total loss, or, to reduce the total cost of insurance to the insured, from 25 to 40 per cent of the value of a vessel may be covered by a "total loss only" policy. When a vessel is of an inferior grade, the rate for full coverage insurance may be very high, and the cost of securing adequate insurance can be reduced by means of a total loss only policy for a percentage of the vessel's total value.

Other policies that may be mentioned are the "port risk only" policy that covers the fire, collision and other hazards to which a vessel is subject when in port, the "builders' risk insurance" policy which covers fire and damage risks during the construction, launching, and trial trip of a vessel, and "protection and indemnity" insurance covering various legal liabilities to which a vessel owner is subject as regards damage to cargo in his custody, injury to passengers, crew, or laborers, damages caused by collision with vessels, and damages to piers or other structures.

CARGO INSURANCE POLICIES¹⁰

Marine insurance covering ocean cargo, as in the case of vessel insurance, requires the use of several kinds of policies. There are different policies to cover different kinds of cargoes, such as cotton, coal, live stock, lumber and other special commodities. The cargo policy may also provide for insurance upon freight payments that have been made, or there may be a separate "freight policy."

¹⁰ The following statement concerning cargo insurance policies is taken with slight change from the volume on *Foreign Trade* by G. G. Huebner and R. L. Kramer, pp. 602, 605.

A cargo policy may be "valued" or "open." The former states definitely the insured value of the property, while the latter leaves the value to be ascertained in case a loss occurs. A marine insurance policy may also be of either the "named" or "floating" type. In the named policy, the name of the vessel in which the cargo is to be carried is stated, while in a floating policy the type or class of vessel, the limits of the voyage, and the value of insured cargo on a valuation basis are specified, but the shipper, at the time he seeks insurance, does not know upon which vessel the goods are to be transported. "As soon, however, as the name of the vessel employed on the voyage becomes known to the insured, this information, together with any important attending facts, is declared to the underwriters and 'endorsed' on the policy, thus making it a 'named' policy instead of a 'floating' one."¹¹ Differing somewhat from the "floating" policy is a "blanket" policy in which the name of the vessel is also to be ascertained after the insurance is contracted by the shipper, but which calls for the payment of a lump sum premium based upon the "estimated total amount which will come under the protection of the policy during the contract terms,"¹² instead of a separate premium based upon the value of each shipment as it is made. Provision may, of course, be made in a "blanket" policy for a readjustment of premium at the end of the contract term in case actual shipments insured exceeded or were smaller than the estimated total amount provided for in the policy.

Both floating and blanket policies are a great convenience in international commerce because they enable merchants to obtain protection for all shipments as they are currently made without negotiating a separate marine insurance policy for each shipment. The open policy becomes a basic policy against which marine insurance certificates are issued promptly as shipments are made. It is these certificates, rather than the underlying policies themselves, that have for years played such an important part in international settlement and credit extension. Serving as negotiable instruments, the certificates are regularly attached to

¹¹ S. S. Huebner, "Marine Insurance in the U. S.," in *Annals, American Academy Political and Social Science*, Vol. xxv, pp. 241-299.

¹² W. D. Winter, *Marine Insurance* (1920), p. 129.

BE IT KNOWN THAT

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 (No)

as well in own Name, as for and in the Name and Names of all and every other Person or Persons to whom the same doth, may, or shall appertain, in part or in all, doth make Assuance and cause and them and every of them to be insured, lost or not lost, at and from upon any kind of Goods and Merchandises, and also upon the Body, Tackle, Apparel, Ordnance, Munition, Artillery, Boat and other Furniture, of and in the good Ship or Vessel called the whereof is Master, under God, for this present Voyage . or whosoever else shall go for Master in the said Ship, or by whatsoever other Name or Names the said Ship, or the Master thereof, is or shall be named or called, beginning the Adventure upon the said Goods and Merchandises from the loading thereof aboard the said Ship upon the said Ship,

&c, and shall so continue and endure, during her Abode there, upon the said Ship, &c, and further, until the said Ship, with all her Ordnance, Tackle, Apparel, &c, and Goods and Merchandises whatsoever, shall be arrived at upon the said Ship, &c, until she hath moored at Anchor Twenty-four Hours in good Safety, and upon the Goods and Merchandises until the same be there discharged and safely landed, and it shall be lawful for the said Ship, &c, in this Voyage to proceed and sail to and touch and stay at any Ports or Places whatsoever .

without Prejudice to this Insurance The said Ship, &c, Goods and Merchandises, &c, for so much as concerns the Assured by Agreement between the Assured and Assurers in this Policy, are and shall be valued at

FORM 9 LLOYD'S STANDARD

international drafts together with necessary bills of lading and invoices

Owing to a question of law that arose in England that marine insurance certificates were not complete in themselves, a new marine insurance document, known as a special policy, has come

Touching the Adventures and Perils which we the Assurers are contented to bear and do take upon us in this Voyage, they are, of the Seas, Men-of-War, Fire, Enemies, Pirates, Rovers, Thieves, Jettisons, Letters of Mart and Countermart, Surprisals, Takings, at Sea, Arrests, Restraints and Detainments of all Kings, Princes, and People, of what Nation, Condition, or Quality soever, Baniaty of the Master and Maimers, and of all other Perils, Losses, and Misfortunes, that have or shall come to the Hurt, Detriment, or Damage of the said Goods and Merchandises and Ship, &c, or any Part thereof, and in case of any Loss or Misfortune, it shall be lawful to the Assured, their Factors, Servants, and Assigns, to sue, labour, and travel for, in and about the Defence, Safeguard and Recovery of the said Goods and Merchandises and Ship, &c, or any Part thereof, without Prejudice to this Insurance, to the Charges whereof we, the Assurers, will contribute, each one according to the Rate and Quantity of his Sum herein assured. And it is especially declared and agreed that no acts of the Insurer or Insured in recovering, saving, or preserving the property insured, shall be considered as a waiver or acceptance of abandonment. And it is agreed by us, the Insurers, that this writing or Policy of Assurance shall be of as much Force and Effect as the surest Writing or Policy of Assurance Heretofore made in Lombard Street, or in the Royal Exchange, or elsewhere in London. And so we the Assurers are contented, and do hereby promise and bind ourselves, each one for his own Part, our Heirs, Executors, and Goods, to the Assured, their Executors, Administrators, and Assigns, for the true Performance of the Premises, confessing ourselves paid the Consideration due unto us for this Assurance by the Assured.

at and after the Rate of

IN WITNESS whereof we, the Assurers, have subscribed our Names and Sums assured in

N B—Corn, Fish, Salt, Fruit, Flour, and Seed are warranted free from Average, unless general, or the Ship be stranded, Sugar, Tobacco, Hemp, Flax, Hides, and Skins are warranted free from Average under Five Pounds per Cent, and all other Goods, also the Ship and Freight, are warranted free from Average under Three Pounds per Cent, unless general, or the Ship be stranded.

INSURANCE POLICY

into use. This differs from the certificate in that it contains all the terms of the open policy against which it is issued and refers to the policy merely by number. The special policy and the certificate serve the same purpose, and both are now used in international commerce. The former is often referred to as a certificate

MARINE INSURANCE POLICY FORMS

There are many different policies used in writing vessel, cargo and other kinds of marine insurance, but the contract provisions of all vessel and cargo policies contain some of the clauses of the standard insurance policy used by the underwriters in Lloyd's Association. The quaint terms used in Lloyd's policy show that it has had a long history. The terminology used in this policy is retained as the core of present day marine insurance policies because its meaning has been determined by a long series of court decisions. Indeed, Lloyd's policy has been given a general legal status by Great Britain's Merchant Marine Act of 1906. This Act does not require the use of a particular form of policy, but it sets forth Lloyd's form of policy and states, along with the policy, the rules governing the interpretation of its provisions. This form of policy, supplemented by such notations and provisions as a particular insurance transaction may require, may be used in underwriting either vessel or cargo insurance. Lloyd's standard policy is printed as Form 9.

The standard hull insurance policy is a lengthy document with many provisions covering the terms and conditions of the contract and the obligations of the insurer. Printed as this volume is printed, it would occupy six pages. An individual policy may also be supplemented by special clauses covering exceptional contingencies and obligations. The main features of the policy may be rather briefly enumerated. After stating the amount of the insurance and the dates when the insurance begins and ends, and after naming the vessel and its equipment, stating what kinds of cargo it may carry, setting forth the classes of risks covered, and apportioning the total amount of insured value among the hull, the boilers and machinery, and other apparatus, the rate of insurance to be paid is stated. The policy then states the percentage of the total amount of the insurance upon the hull and machinery that is upon the basis of "policy proof of interest." There may then follow a stipulation as to the insurance upon anticipated earnings from freight or charter hire. At this point in the policy is the paragraph from Lloyd's standard policy beginning with the phrase, "Touching the adventures and perils which we, the said insurers, are con-

ON ACCOUNT OF

In case of loss to be paid in funds current in the United States, to

Do make insurance, and coupon to be insured but at not but at not from

more all kinds of useful goods and merchandise, taken or to be taken on board.

the gross amount is master for this present voyage vessel, or by whatever other name or names the said vessel, or the master thereof, is or shall be named or called.

beginning the adventure upon the said goods and merchandise, store and furniture, following the loading thereof on board of the said vessel, or on board, and so shall continue and endure until the said goods and merchandise shall be and is landed as aforesaid, AND it shall and may be lawful for the said vessel, in her voyage to proceed and sail to, touch and stay at, any ports or places, if thereunto obliged by stress of weather or other unavoidable accident, without prejudice to this insurance. The said goods and merchandise,

[illegible][illegible]

In the event of risk of war being assumed by endorsement under this policy, the assured warrant not to abandon in case of capture, seizure or detention, until after the condemnation of the property insured, nor within sixty days after notice of said condemnation is given to this Company. Also warranted not to abandon in case of blockade and fire from any expense in consequence of detention of blockade; but in case of blockade, to send the insured to an open port and there and the warrant.

[illegible][illegible]

Warranted by the insured that this insurance shall not secure directly or indirectly to the benefit of the carrier or other parties by stipulation in bill of lading or otherwise, and any breach of this warranty and any act or agreement by the insured, prior or subsequent thereto, whereby any carrier or party liable for or on account of loss of or damage to any property insured hereunder is given the benefit of any insurance effected through him, shall render this policy of insurance null and void.

In case of any agreement by the insured, prior or subsequent hereto, whereby any right of recovery of the insured for loss of damage to any property insured hereunder against any person or corporation, in ransom, impound or lost, which would on acceptance of abandonment or payment of a loss by this Company have entailed a fee benefit, but for such agreement or not, this Company shall not be bound to pay any loss, but its right to retain or recover the amount shall not be affected.

Warranted by the assured, that the assignment of this policy or of any insurable interest therein, or also that the subrogation or any right thereunder to any party without the consent of this Company shall render the insurance affected by such assignment or subrogation void.

THE INSURANCE COMPANY OF NORTH AMERICA has caused these presents to be signed by its President and attested by its Secretary in the City of Philadelphia; but this policy shall not be valid unless countersigned by a duly authorized Agent of the Company.

John J. Thorne
Barbury

Raymond Smith
President

Continued at _____ this _____ day of _____ 19____

tented to bear," etc This paragraph is succeeded by those dealing with accidents to machinery, collisions and salvage Then come detailed provisions as to the insurer's obligations under "general average" rules, as to liability in case various enumerated damages should be incurred, as to the notice the insured is to give the insurer concerning losses and damage, and as to the survey that is to be made to ascertain the amount to be paid With the exception of the necessary special clauses that may be added to cover particular conditions, the policy used in insuring hulls will regularly contain the provisions of the standard form here outlined

The provisions of a cargo marine insurance policy are less detailed than those of a hull policy The form of the document as printed may vary with different companies and at different times, and the stipulations in the "endorsement" attached to policies will vary with individual policies, but the essential contract provisions of all cargo policies will necessarily be much the same The endorsement interprets and fixes the obligations of the contracting parties A copy of a standard cargo insurance policy and of a specimen of an endorsement that may be attached to such a policy are printed as Form 10^{1a}

^{1a} The cargo policy illustrated on page 285 bears the following supplementary clauses

1—Warranted that no claim shall be made in General Average arising from the loss or jettison of merchandise from on deck

2—Warranted that in case of partial loss on merchandise, this Company shall have notice of such damage within eight days after the landing of such merchandise

3—All risks to be reported as soon as known and amounts declared as soon as ascertained

4—This policy shall be deemed continuous, but it is understood that either party is at liberty to cancel this policy at any time, on giving thirty days' written notice to that effect, which is not however to prejudice any risk then pending

5—Proofs of loss to be authenticated by the Agent of this Company, if there be one where such proofs are taken, otherwise by a Correspondent of the Board of Underwriters of New York, if there be one where such proofs are taken, but if neither is represented, then by some other recognized Insurance Authority

6—The sound value at the port or place of destination outward is to be deemed not to exceed the purchasing price at the shipping port, and ten per cent added thereto, exclusive of duty and freight

7—The Company is to be entitled to premium on all the risks covered hereby whether reported or not, but should assured fail to report any such risks, or to pay premium or premium note when due, then the policy as to all subsequent risks shall at the option of the Company become null and void.



FOREIGN MARINE POLICY INSURANCE COMPANY OF NORTH AMERICA PHILADELPHIA

INCORPORATED A.S. 1796

No. _____

(PLACE AND DATE)

The INSURANCE COMPANY OF NORTH AMERICA in consideration of a premium as agreed and subject to the Conditions and Warranties specified herein and/or attached hereto does by this Policy insure

_____ as well in his or their own name as in that of those to whomsoever the subject matter of this Policy does or shall appertain in the sum of ..

MAKES AND NUMBERS

valued at _____
laden (under deck) on board the ship or vessel called the _____

(lost or not lost) at and from _____

SPECIAL CLAUSES

Warranted not to detract the interest of any particular person, association or person, insurance for whose account would be treasury to the trading with the United States, or other nations in production or the United States.

ALL CLAUSES ABOVE TAKE PRECEDENCE OVER THE FOLLOWING IF IN CONFLICT THEREWITH.

REVENUE OF THE UNITED STATES AND THE UNITED STATES MARSHAL SERVICE, and the INSURANCE COMPANY OF NORTH AMERICA, in consideration of a premium as agreed and subject to the Conditions and Warranties specified herein and/or attached hereto does by this Policy insure

_____ as well in his or their own name as in that of those to whomsoever the subject matter of this Policy does or shall appertain in the sum of ..

valued at _____
laden (under deck) on board the ship or vessel called the _____

(lost or not lost) at and from _____

_____ as well in his or their own name as in that of those to whomsoever the subject matter of this Policy does or shall appertain in the sum of ..

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laden (under deck) on board the ship or vessel called the _____

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valued at _____
laden (under deck) on board the ship or vessel called the _____

(lost or not lost) at and from _____

_____ as well in his or their own name as in that of those to whomsoever the subject matter of this Policy does or shall appertain in the sum of ..

valued at _____
laden (under deck) on board the ship or vessel called the _____

(lost or not lost) at and from _____

_____ as well in his or their own name as in that of those to whomsoever the subject matter of this Policy does or shall appertain in the sum of ..

valued at _____
laden (under deck) on board the ship or vessel called the _____

(lost or not lost) at and from _____

NOTICE: This policy is subject to the provisions of the United States of Great Britain, in order to collect any claim under this Policy, it must be stamped within two days after its receipt in the United States. If the policy is not stamped within two days after its receipt in the United States, it shall be void. If the policy is not stamped within two days after its receipt in the United States, it shall be void.

In Witness Whereof, the INSURANCE COMPANY OF NORTH AMERICA has caused these presents to be signed by its President and attested by its Secretary in the City of Philadelphia.

Not valid unless countersigned

Countersigned

PLEASE READ YOUR POLICY

Form 11 MARINE INSURANCE CERTIFICATE

A sample copy of a marine insurance certificate referred to in the above statement regarding floating and blanket policies is reproduced as Form 11 on page 287. The certificate, it will be observed, contains the provisions of the open policy by which it is preceded. The certificate thus becomes, in effect, a special policy.

FACTORS AFFECTING INSURANCE RATES

The foregoing account of marine insurance, though necessarily limited to the main features of the subject, indicates the importance and the complex character of the business. Successful marine underwriting requires the services of brokers who are well informed as to the many kinds of ships, as to operating conditions, and as to the effect of both on risks to vessels and cargo. More than that the marine insurance underwriter must be a judge of men, for the risks taken depend upon human as well as physical factors. Vessels of like character may be operated over the same route by companies and captains who keep their vessels in good repair, who are able operators and who take special care to minimize possible damage to cargoes, or the operating companies and masters may neglect repairs, be unskilful operators and be negligent as to stowage and safeguarding of cargo. The latter class of owners and operators should pay, and do pay, higher marine insurance rates than the former class pays.

The physical factors affecting hull insurance rates will be (1) the prevailing weather conditions and the topography of the routes navigated—some routes are relatively safe, others are hazardous, (2) the construction, type and nationality of the vessel, information concerning which is obtainable from a register of shipping issued by Lloyd's, or the Bureau Veritas, the American Bureau of Shipping, or some other classification society, and (3) the extent to which losses due to these factors are covered by the underwriter. As has been explained, policies may provide full coverage, or may cover only total losses, some policies cover only partial losses which may be made payable by particular average or general average. These and other factors will affect the terms of hull policies and the rates paid for insurance.

The main considerations affecting cargo marine insurance rates will, naturally, be (1) the character of the commodities insured, (2) the special hazards and customs pertaining to the route over which the goods are to be carried, (3) the rating and the suitability of the vessel transporting the cargo, (4) the duration of the voyage, and (5) as in the case of hull insurance, the conditions and stipulations of the policy. Moreover, the rates paid by the shipper of cargo will depend upon the operating record of the carriers. The higher the efficiency record of the steamship line, the lower will be the rate of insurance upon the cargo carried.

The marine insurance business is highly competitive, and the competition is international. The owners of vessels can, and do, seek insurance in the world's cheapest market therefor, whether it be in England, the United States or elsewhere. This explains why the building up of marine insurance in the United States has been a long and laborious process. It has been necessary for American underwriters to do business in competition with foreign underwriters and companies that have long done business upon an international scale. Rates are not stabilized in marine insurance, as they are in fire insurance. Competition controls the marine insurance rates. In the United States, at least, it has been the writers of marine insurance, rather than those insured, that have needed the fostering care of the government.

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PART III
SHIPPING DOCUMENTS

CHAPTER XVII

DOCUMENTS REQUIRED BY OCEAN CARRIERS

In a study of practical steamship operation much depends upon a knowledge of the shipping documents required by the carriers, by the United States Government and by foreign governments. It is the purpose of this chapter to describe the contents of the essential documents required by ocean carriers, the manner in which they are handled, and the uses to which they are put.

CARGO CONTRACTS AND BOOKING RECORDS

It is the ambition of every traffic manager, and freight agent, or loading broker, to have the available cargo space in his vessels fully engaged before the vessel arrives in port. This is not always accomplished and cargo is frequently booked almost up to the day of sailing, but as this complicates the work of the traffic department, causes confusion in the last hours before sailing and interferes with the efficient loading of the vessel, cargo is booked in advance whenever possible. With an absence of sufficient cargo there is little opportunity for selection, but when cargo is abundant the traffic manager and freight agents endeavor so to balance weight and measurement cargo and the amount of fuel taken on as to approach the point of maximum net earnings. The vessel should, if possible, be loaded with a maximum profitable cargo.

Freight contracts are therefore closed with shippers either by mail or personally by freight agents, salesmen, solicitors or brokers. A typical freight contract (Form 12) specifies the name of the shipper and his address, the name of the vessel, expected time of loading or sailing, destination, cargo description, number of cases, bales, etc., and weight of cargo, the freight rate per cubic foot, or equivalent weight or measurement at ship's option, and a clause to the effect that the contract is made sub-

ject to the terms of the bills of lading in use by the vessel's agents

As fast as cargo bookings are made, entries are made in the *freight engagement record* of the traffic department. The loose leaf record or daily booking sheet is so planned as to show at any particular time the amount of cargo that has been booked. The items usually entered are the name of the steamer, the port of sailing and destination, the weight and measurement of the cargo booked, the number of packages, a description of their contents, time of delivery, with whom booked and the freight rates at which they were booked.

SHIPPING PERMITS

The various cargoes when booked may not be delivered indiscriminately or at any time by the shippers, except by special arrangement in unusual instances. The general practice for many years was to deliver outbound cargo on *shipping permits* issued by the permit clerks of the traffic department, and this continues to be the prevailing method at some ports. The use of formal shipping permits has, however, been discontinued at certain ocean ports, the necessary arrangements being made by telephone or otherwise. Under present conditions of reduced traffic volume, there is less need for close supervision of outbound shipments and the opportunity of obtaining a well-balanced cargo for each vessel from the standpoint of maximum profits is greatly reduced.

Under the permit system, which even now is adhered to at some ports, permit clerks, under the direction of the freight traffic manager or his assistant, issue permits which instruct the receiving clerk at a specified wharf or pier to receive from a named shipper, on specified dates, certain packages of cargo of described contents, weights and *shipping marks* for shipment to a given port of destination in a designated steamer. They also indicate the number of the export declaration covering the shipment and contain various terms and conditions as to maximum value per package, lighterage and liability.

The shipping permits issued by some steamship lines are simple documents which do not contain extensive terms and conditions. They, however, serve their essential purposes in that

[illegible]

FORM 13A SHIPPING OR DOCK RECEIPT

or other stowage considerations described in Chapter XI. A record of the permits issued is usually kept on permit sheets

DOCK RECEIPTS

As cargo for which shipping permits have been issued is delivered by the shipper or his representative by truck, car or lighter, he is given a *dock receipt* which is issued by the receiving or assistant receiving clerk of the wharf department. In issuing these receipts, notations are made of irregularities such as frail containers, shifting contents, or signs of tampering with packages. Unless the shipper rectifies such irregularities or

AUDITORE CONTRACTING CO., INC.

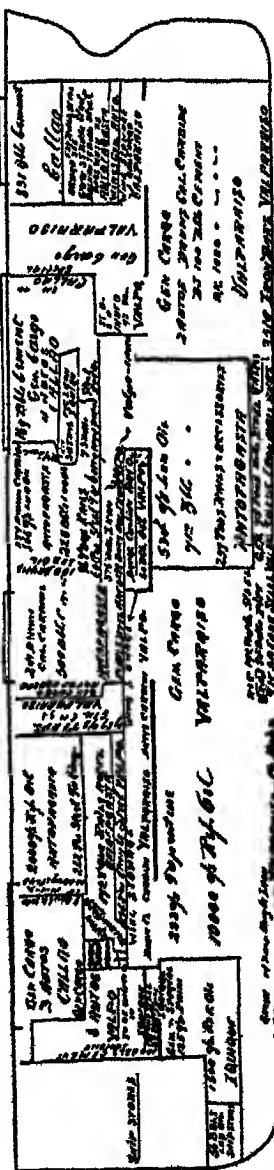
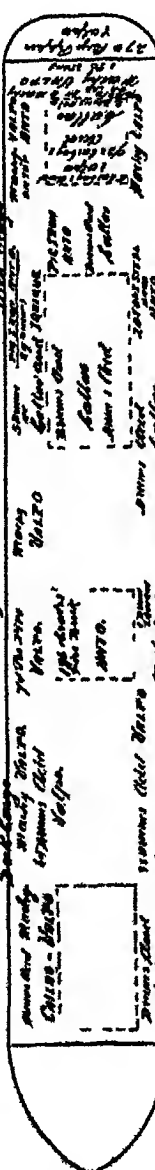
STEVEDORES

BROOKLYN, N. Y.

44 & 46 SACKETT STREET

STOWAGE PLAN A - *Sentinel* - AT New York - *for West. Coast of S. A.*

Scale
1" = 20' 0"
1" = 20' 0"
1" = 20' 0"



FORM 14 STOWAGE PLAN

tains a statement that the cargo is received subject to the conditions expressed in the steamship company's bill of lading and with the understanding that the carrier may substitute other steamers, that the port of destination must be marked on each package, and that the bills of lading accompanied by clearances, should be presented not later than one day before sailing. It is specified by some steamship lines that the dock receipts are to be returned with the bill of lading, i.e., be exchanged for them, but this is frequently not done in practice. Although dock receipts are not bills of lading, they usually contain certain clauses limiting the liability of the issuing carrier.

TALLY SHEETS, DOCK SHEETS OR RETURNS, CARGO BOOKS AND
STOWAGE PLANS

Although the work of the wharf department is more fully described in Chapter XI, it is necessary at this point to refer to the tally and dock sheets and cargo books made at the piers because they are used by the traffic department in issuing bills of lading and in preparing the ship's manifest. As cargo is landed from lighters, cars or trucks for loading, each package or piece is tallied, measured and recorded on *dock sheets*, and damage to freight is noted by the receiving tallymen of the wharf department. All packages as received are listed with the number of packages in the shipment, their marks, description of their contents, dimensions or measurements, their cubical contents, weight and shipping marks, permit and dock receipt numbers, names of shippers corresponding to those on the permits, the name of steamer and the port of destination. Extension clerks then by means of conversion tables translate the measurements on these sheets into tons and consolidate the tallymen's reports ready for calculation of freight. Each sheet is numbered, and a column is provided for inserting the number of the bill of lading. When comparison of the dock sheets with duplicate copies of shipping permits sent to the dock by the traffic department shows that cargo was not delivered by the shipper on permit dates, the receiving clerk of the wharf department usually notifies the former on separate dock sheets designated as "not arrived."

When cargo is loaded into the steamer's holds, lighterage

clerks or tallymen, or sometimes, in case of foreign cargo carriers, subordinate deck officers or apprentices, make up *tally sheets* containing full particulars concerning each separate shipment. The items listed in the tally sheet are those contained in the dock sheets, a separate sheet, however, being made out for each shipment.

The dock sheets and tally sheets are used for various purposes.

- 1 They constitute an original record for the wharf department of all cargo received at the docks and loaded into vessels.

- 2 Tally sheets are of assistance to the wharf department in the preparation of the *stowage plan* (Form 14) which graphically shows the disposition of cargo within the holds of the vessel and is of utility in discharging cargo and in preparing the ship's manifest, if it has been carefully drawn.

- 3 Copies of the tally sheets made when cargo is loaded into the vessel are usually kept on board by the chief officer, under whose supervision the purser makes up a ship's cargo book which lists the vessel's cargo laden in each hold by marks and numbers consigned to each port.

- 4 Copies of the dock sheets are sent each day and when loading, several times daily, to the traffic department, here they are needed by bill of lading clerks in checking against the bills of lading which the shippers are expected to present for signature as soon as their cargo has been sent to the dock, and in calculating the amount of freight, the rate and the basis on which it is determined.

OCEAN BILLS OF LADING

The principal shipping paper that the shipper obtains is the *ocean bill of lading*. It is a fundamental document, because it represents the goods being shipped. It is the final receipt from the carrier and a shipping contract between the carrier and shipper, it frequently is needed to establish ownership, which is important in financing and in making delivery to the consignee, certified copies are required in many countries for purposes of customs entry, and, in times of war, copies of the bill of lading may be carried by the vessel to supplement the ship's manifest in the identification of cargo. When drawn to the shipper's order, moreover, it is a negotiable document, which the shipper

may use as the basis for a draft. Indeed, the most widely used method of financial settlement in the foreign trade is by documentary drafts or bills of exchange, to which a negotiable ocean bill of lading, a marine insurance certificate or policy, the shipper's invoice and perhaps also consular invoices, etc., are attached. When drawn to the shipper's order, the ocean bill of lading needs to be endorsed by the shipper, and the consignee cannot obtain the goods from the ocean carrier without presenting the endorsed bill of lading. Ocean bills of lading are rarely drawn directly in the name of the consignee unless he has paid for the goods or has provided security for payment before shipment, or unless he has an open account arrangement with the shipper.

Ocean bills of lading are therefore of two general types as to whether they are drawn to the order of the shipper or directly in the name of the consignee to whom the exported wares are actually being shipped. The former are known as "order" and the latter as "straight" bills of lading. They may also be classified into "received for shipment" and "shipped" or "on board" bills of lading. The former indicate a definite named vessel and are issued when the goods are in the possession of the ocean carrier, but before they are loaded on board the vessel. The latter are issued only after the goods have actually been loaded on board the vessel. The difference is sometimes important in carrying out arrangements that have been made for the financial settlement of export transactions. Banks may for example be prohibited from paying out funds under a letter of credit unless a "shipped" or "on board" bill of lading is attached to the drafts drawn against a bank credit.

The bills of lading are filled out on the carriers' blanks by the shipper who is expected to present them for signature as soon as his cargo has been sent to the dock. The various packages shipped are listed as in the dock receipts that were issued when they were delivered at the dock, care being taken in the entry of contents, numbers, marks and weight. The shipper is supposed to return the dock receipts with bills of lading as they contain the receiving clerk's notations concerning frail containers or packing, signs of tampering, shifting contents or other irregularities. These notations are also made on the dock sheets,

but if the receipts are returned, the bill-of-lading clerks have an additional check. The number of copies of the ocean bill of lading issued varies according to the requirements of the shipper, the consignee, the banks through which draft settlements are made, and the carrier, and in some instances also according to the consular requirements of foreign countries.

The number of negotiable bills is usually three or four and the number of non-negotiable copies varies from three to ten or more. A steamship line sometimes retains as many as eight copies for its own use. When bills of lading are attached to a draft, a "full set" or all of the negotiable copies that have been issued are required by the bankers handling the financial transaction.

The contract terms contained in ocean bills of lading have not been standardized, although attempts to bring about uniformity have been made. The much discussed Hague Rules were first proposed by the Maritime Law Committee of the International Law Association in 1921. They were later amended in 1922 and again in 1923, and, subject to certain alterations, became known as the Brussels Rules. They were then adopted in Great Britain in the Carriage of Goods by Sea Act of 1924, and they were also enacted into law in the British Crown Colonies and in Holland and Belgium. An attempt was made to have them adopted in ocean bills of lading by all maritime nations. This, however, was not accomplished. They were, with certain modifications, incorporated in bills that were introduced in the Congress of the United States, the bills, however, failing of enactment. But the attempt to enact into law a code of terms similar to those of the Brussels Rules has not been abandoned. The code of rules now urged was put into final form by a committee of experts which met at Brussels in 1928 and is urged by the Chamber of Commerce of the United States and the International Chamber of Commerce.

Uniformity was also one of the purposes of the United States Shipping Board in prescribing standard forms of bills of lading for use in connection with its vessels, but private steamship companies are not required to issue these bills in their private services. The Interstate Commerce Commission, in prescribing a uniform through export bill of lading also desired to promote

uniformity, but accomplished this only in part. The conditions set forth in the uniform through export bill of lading are binding, but shipments so billed are also subject to all conditions expressed in the steamship company's regular ocean bill of lading in so far as they do not conflict with the terms of the through bill of lading.

Local conditions at different ports, and the customary practice in different trades frequently cause steamship lines to vary the degree of their liability, and lines operating in the same trade may issue bills of lading containing different contract provisions. The legal liability of carriers by water in the United States is regulated by the Harter Act of 1893, but this Act allows considerable opportunity for variation in bill-of-lading provisions, and some lines may voluntarily accept greater responsibility for loss and damage of cargo than others. The legal liability of ocean carriers is radically different from that of the railroads. The difference is so pronounced in its practical effects that a huge marine insurance industry has been created not merely for the insurance of vessels but to provide the cargo protection needed by exporters and importers. The Harter Act exempts ocean carriers from legal liability except under certain conditions which do not include some of the principal risks incurred in ocean shipping.

The ocean carrier is not liable for loss or damage that may occur on its wharves unless negligence can be shown, and such negligence as the law implies may be difficult to establish. A gap may in fact occur at the port during which neither the ocean nor the railroad carrier is legally liable, as a common carrier. The extent to which ocean carriers actually assume such liability in their bills of lading varies. Ocean bills of lading as a rule contain clauses in which a maximum value for each package is fixed, the liability of the carrier being limited to such amount regardless of the actual value of the package. This practice corresponds to the released values under which certain commodities are shipped by rail, but the practice is very much more general in ocean shipping. The general maximum value per package stated in the Shipping Board bill of lading is \$250. That provided for in the uniform through export bill of lading prescribed by the Interstate Commerce Commission is also \$250, but the

maximum value provided for in the so-called Brussels or Hague rules under which some ocean carriers operate is 100 pounds sterling, and those stated in the ocean bills of lading of other private lines and tramps vary

Ocean bills of lading (Form 15) contain many other contract provisions. They often contain a "notify" clause which authorizes the carrier's agent at destination to notify the person who will ultimately receive the cargo of its arrival, without, however, releasing shipments billed on order bills of lading. They variously specify the receipt of goods at "end of ship's tackle" or otherwise, and the payment of lighterage, wharf-handling charges and other costs may be covered by a special clause. A minimum freight charge per shipment may be stipulated, transshipment risks and costs may be provided for, prepayment of freight may be required. Ocean bills of lading vary as to the liability assumed while goods are on wharves or piers. Their liability here depends upon evidence of negligence, but they vary as to proof of negligence. In some instances the claimant is required to provide proof while other ocean bills of lading shift the burden of proof to the carrier. They also vary as to liability in case of barratry of master or crew, and as to time limits governing written notice of claims, filing of claims, and the bringing of suits.

At times, the interior exporter, instead of billing his freight to the port of export on a railroad bill of lading, and then rebilling it by obtaining an ocean bill of lading, may prefer to bill it through to the foreign port of entry, or even to an interior destination in a foreign country. Although substantial amounts of export freight are billed in this manner, particularly to Oriental destinations through Pacific Coast ports, many exporters prefer to make their own port arrangements either directly or through ocean freight forwarders.

Objections to the use of through railroad export bills of lading voiced by some exporters variously imply that shipments so billed are less likely to retain the full advantage of prompt ocean sailings and favorable ocean rates, that some banks and marine insurance companies are opposed to such billing, that the filing of freight claims is complicated, or that direct economies may result from the services of a port shipping office or an efficient

ocean freight forwarder Railroads are more likely to forward shipments by way of particular steamship lines, and should a shipment fail to arrive in time for the vessel for which it was intended, there is less likelihood of its transfer to a different line for shipment in a steamer scheduled for prompt sailing The rail carrier will probably deliver the shipment as originally billed, although it reserves the right to transfer it to a different line Financing and insurance are complicated somewhat, although not in an impossible manner, because the through railroad bill of lading, as issued by a railroad freight agent, may contain only the name of the steamship line, the bank making payments on letters of credit, however, wishes to know the actual date of sailing, and the insurance company, the name of the steamer in which the shipment is made Freight claims are complicated somewhat because, although merchandise billed on a railroad export bill of lading is not handled at the port of export by the shipper or his own port representative, this form of bill of lading is not a joint contract Each of the three sections into which the contract provisions are divided constitutes a separate contract Part I, applicable to railroads, provides that "no carrier shall be liable for loss, damage or injury not occurring on its own road or its own water line or its portion of the through route, nor after said property has been delivered to the next carrier " Part II, applicable to the ocean carrier, similarly provides that the ocean carrier is not liable for loss or damage occurring after it has delivered a shipment to a connecting carrier for further transportation to a point beyond the port of discharge ²

² CONTRACT TERMS AND CONDITIONS OF THROUGH EXPORT BILL OF LADING

Any alteration, addition, or erasure in this bill of lading which shall be made without the special notation hereon of the agent of the carrier issuing the bill of lading shall be without effect, and this bill of lading shall be enforceable according to its original tenor If shipment consists of cotton or cotton linters, it is usually understood and agreed that the description of the condition does not relate to insufficiency of or the torn condition of the covering, or to any damage resulting therefrom, and that no carrier shall be responsible for any damage of such nature The vessel shall be at liberty to call at any port or ports in or out of the customary route, to tow and be towed, to transfer, transship, or lighter, to load and discharge goods at any time, to assist vessels in distress, to deviate for the purpose of saving life or property, and for docking and repairs

This bill of lading is not to be used on traffic from a point in the United States destined to an adjacent foreign country

PARCEL RECEIPTS

The minimum freight clause usually contained in ocean bills of lading often makes it too expensive to ship single, small par-

PART I With respect to the service until delivery at the port (A) first above mentioned it is agreed that—

1 (a) The carrier or party in possession of any of the property herein described shall be liable as at common law for any loss thereof or damage thereto except as hereinafter provided

(b) No carrier or party in possession of all or any of the property herein described shall be liable for any loss thereof or damages thereto or delay caused by an act of God, the public enemy, the authority of law, or the act or default of the shipper or owner, or for natural shrinkage. The carrier's liability shall be that of warehouseman, only, for loss, damage, or delay caused by fire occurring after the expiration of the free time allowed by tariffs lawfully on file (such free time to be computed as therein provided) after notice of the arrival of the property at destination or at the port of export (if intended for export) has been duly sent or given, and after placement of the property for delivery at the port of export, or tender of delivery of the property to the party entitled to receive it, has been made. Except in case of negligence of the carrier or party in possession (and the burden to prove freedom from such negligence shall be on the carrier or party in possession), the carrier or party in possession shall not be liable for loss, damage, or delay occurring while the property is stopped and held in transit upon the request of the shipper, owner, or party entitled to make such request, or resulting from a defect or vice in the property, or for country damage to cotton, or from riots or strikes

(c) In case of quarantine, the property may be discharged at risk and expense of owners into quarantine depot or elsewhere, as required by quarantine regulations, or authorities, or for the carrier's dispatch, at nearest available point in carrier's judgment, and in any such case, carrier's responsibility shall cease when the property is so discharged, or the property may be returned by carrier at owner's expense to shipping point, earning freight both ways. Quarantine expenses of whatever nature or kind upon or in respect to the property shall be borne by the owners of the property or be a lien thereon. The carrier shall not be liable for loss or damage occasioned by fumigation or disinfection or other acts required or done by quarantine regulations or authorities, even though the same may have been done by carrier's officers, agents, employees, or crew, nor for detention, loss or damage of any kind occasioned by quarantine or the enforcement thereof. No carrier shall be liable except in case of negligence for any mistake or inaccuracy in any information furnished by the carrier, its agents, or officers, as to quarantine laws or regulations. The shipper shall hold the carriers harmless from any expense they may incur, or damages they may be required to pay, by reason of the introduction of the property covered by this contract into any place against the quarantine laws or regulations in effect at such place

2 (a) In issuing this bill of lading, this company agrees to transport only over its own line and acts only as agent with respect to the portion of the route beyond its own line

(b) No carrier shall be liable for loss, damage, or injury not occurring on its own road or its own water lines or its portion of the through route, nor after said property has been delivered to the next carrier.

3. (a) No carrier is bound to transport said property by any particular train or vessel, or in time for any particular market or otherwise than

cels in the ocean freight service and often causes the shipment of them through freight forwarders or international express companies who combine many small packages into 40 cubic feet of space and pay freight at the current rate per measurement

with reasonable dispatch Every carrier shall have the right in case of physical necessity to forward said property by any carrier or route between the point of shipment and said port (A)

(b) The amount of any loss or damage, including loss or damage arising from delay for which any carrier is liable, shall be computed on the basis of the value of the property (being the bona fide invoice price, if any, to the consignee, including the freight charges, if paid) at the place and time of shipment under this bill of lading, unless a lower value has been represented in writing by the shipper, or has been agreed upon, or is determined by the classification or tariffs upon which the rate is based, in any of which events such lower value shall be the maximum amount to govern such computation, whether or not such loss or damage occurs from negligence

(c) Claims for loss, damage, or delay must be made in writing to the carrier at the port of export or to the carrier issuing this bill of lading within nine months after delivery of the property at said port (A), or, in case of failure to make such delivery, then within nine months after a reasonable time for such delivery has elapsed, and claims so made against said delivering or issuing carrier shall be deemed to have been made against any carrier which may be liable hereunder Unless claims are so made, the carrier shall not be liable

(d) Any carrier or party liable on account of loss or damage to any of said property shall have the full benefit of any insurance that may have been effected upon or on account of said property, so far as this shall not void the policies or contracts of insurance Provided, that the carrier reimburse the claimant for the premium paid thereon

4 Except where such service is required as the result of carrier's negligence, all property shall be subject to necessary cooerage and baling at owner's cost Each carrier over whose route cotton or cotton lintere is to be transported hereunder shall have the privilege, at its own cost and risk, of compressing the same for greater convenience in handling or forwarding, and shall not be held responsible for deviation or unavoidable delays in procuring such compression

5 (a) Property not removed by the exporting carrier, or the party entitled to receive it, within the free time allowed by tariffs lawfully on file (such free time to be computed as therein provided), after notice of the arrival of the property at port (A) has been duly sent or given, and after placement of the property for delivery at port (A), or tender of the property for delivery upon order of the party entitled to receive it has been made, may be kept in vessel, car, depot, or place of delivery of the carrier or warehouse, subject to the tariff charge for storage and to the carrier's responsibility as warehousemen, only, or, at the option of the carrier, may be removed to and stored in a public or licensed warehouse at port (A), or other available place, at the cost of the owner, and there held without liability on the part of the carrier, and subject to a lien for all freight and other lawful charges, including a reasonable charge for storage

(b) Property destined to or taken from a station wharf, or landing at which there is no regularly appointed freight agent shall be entirely at risk of owner, after unloaded from cars or vessels or until loaded into cars or vessels, and, except in case of carrier's negligence, when received

ton Some carriers have, however, seen fit to facilitate the direct shipment of small packages in the ocean freight service by issuing "parcel receipts" which waive the minimum freight clause, but variously limit the liability of the steamship line to a stated

from or delivered to such stations, wharves, or landings shall be at owner's risk until the cars are attached to and after they are detached from locomotive or train or until loaded into and after unloaded from vessels

6 No carrier hereunder will carry or be liable in any way for any documents, specie, or for any articles of extraordinary value not specifically rated in the published classifications or tariffs unless a special agreement to do so and a stipulated value of the articles are indorsed hereon

7 Every party, whether principal or agent, shipping explosives or dangerous goods, without previous full written disclosure to the carrier of their nature, shall be liable for and indemnify the carrier against all loss or damage caused by such goods, and such goods may be warehoused at owner's risk and expense or destroyed without compensation

8 The owner or consignee shall pay the freight, and average, if any, and all other lawful charges accruing on said property, and, if required, shall pay the same before delivery If, upon inspection, it is ascertained that the articles shipped are not those described in this bill of lading, the freight charges must be paid upon the articles actually shipped

9 (a) If all or any part of said property is carried by water over any part of said route, such water carriage shall be performed subject to all the terms and provisions of, and all the exemptions from liability contained in the Act of Congress of the United States, approved on February 13, 1893, and entitled "An Act relating to the navigation of vessels, etc," and of other statutes of the United States according carriers by water the protection of limited liability and to the conditions contained in this bill of lading not inconsistent therewith or with this section

(b) No such carrier by water shall be liable for any loss or damage resulting from any fire happening to or on board the vessel, or from explosion, bursting of boilers, or breakage of shafts, unless caused by the design or neglect of such carrier

(c) If the owner shall have exercised due diligence in making the vessel in all respects seaworthy and properly manned, equipped, and supplied, no such carrier shall be liable for any loss or damage resulting from the perils of the lakes, seas, or other waters, or from latent defects in hull, machinery, or appurtenances, whether existing prior to, at the time of, or after sailing, or from collision, stranding, or other accidents of navigation, or from prolongation of the voyage Except in case of negligence, such carrier shall not be responsible for any loss or damage to property if it be necessary or is usual to carry the same upon deck

(d) General Average shall be payable according to the York Antwerp Rules of 1924, Sections 1 to 15, inclusive, and Sections 17 to 22, inclusive, and as to matters not covered thereby according to the laws and usages of the Port of New York If the owners shall have exercised due diligence to make the vessel in all respects seaworthy and properly manned, equipped, and supplied, it is hereby agreed that in case of danger, damage, or disaster resulting from faults or errors in navigation, or in the management of the vessel, or from any latent or other defects in the vessel, her machinery or appurtenances, or from unseaworthiness, whether existing at the time of shipment or at the beginning of the voyage (provided the latent or other defects or the unseaworthiness was not discoverable by the exercise of due diligence), the shippers, consignees, and/or owners of the cargo shall nevertheless pay salvage and any special charges incurred in respect of

maximum value, and in some instances impose restrictions upon the dimensions and weight of parcels and reserve the right of the carrier to refuse to issue parcel receipts when there is a suspicion of unfairness. These receipts were originally intended

the cargo, and shall contribute with the shipowner in general average to the payment of any sacrifices, losses, or expenses of a general average nature that may be made or incurred for the common benefit or to relieve the adventure from any common peril.

(e) If the property is being carried under a tariff which provides that any carrier or carriers party thereto shall be liable for loss from perils of the sea, then as to such carrier or carriers the provisions of this section shall be modified in accordance with the tariff provisions, which shall be regarded as incorporated into the conditions of this bill of lading.

(f) The term "water carriage" in this section shall not be construed as including lighterage in or across rivers, harbors, or lakes, when performed by or on behalf of rail carriers.

10 (a) No carrier shall be liable for delay not occurring in its own line, or not the result of its negligence, nor in any respect other than as warehousemen, while the property awaits further conveyance after proper tender of delivery to the next connecting carrier has been made, and if the whole or any part of the property specified herein be prevented by any cause from going from the port of export in the vessel for which intended, the carrier hereunder then in possession is at liberty to forward said property by another vessel of the ocean carrier, or, if deemed necessary, by any other vessel, dispatching notice thereof to the shipper and consignee.

(b) It shall be the duty of the carrier by railroad to deliver such property to the vessel as a part of its undertaking as a common carrier.

PART II With respect to the service after delivery at the port (A) first above mentioned, and until delivery at the port (B) second above mentioned, it is agreed that

1 (a) The vessel shall have liberty to sail with or without pilots, the ocean carrier shall have liberty to convey goods in craft and/or lighters to and from the vessel at the risk of the owners of the goods, and, in case the vessel shall put into a port of refuge, or be prevented from any cause from proceeding in the ordinary course of her voyage, to tranship the goods to their destination by any other vessel, dispatching notice thereof to the consignee, if named herein (at destination named), and otherwise to the shipper. The ocean carrier shall not be liable for loss or damage occasioned by fire from any cause or whatsoever occurring, by barratry of the master or crew, by enemies, pirates, or robbers, by arrest or restraint of princes, rulers or people, riots, strikes, or stoppage of labor, by explosion, bursting of boilers, breakage of shafts, or any latent defect in hull, machinery, or appurtenances, or uns seaworthiness of the vessel, whether existing at time of shipment, or at the beginning of the voyage, provided the owners have exercised due diligence to make the vessel seaworthy, by fumigation under Governmental orders, by heating, frost, decay, putrefaction, rust, sweat, change of character, drainage, leakage, breakage, vermin, or by explosion of any of the goods whether shipped with or without disclosure of their nature, or any loss or damage arising from the nature of the goods or the insufficiency of packages, nor for inland damage, nor for the obliteration, errors, insufficiency or absence of marks, numbers, address, or description, nor for risk of craft, hulk or transshipment, nor for any loss or damage caused by the prolongation of the voyage. This ocean carrier shall not be concluded as to correctness of statements herein of quality, quantity, gauge, contents, weight, and value.

solely for samples of export merchandise, but their use has become somewhat more general

Except in so far as the receipt itself imposes special conditions, it embodies all the terms and conditions contained in the

(b) General Average shall be payable according to the York Antwerp Rules of 1924, Sections 1 to 15, inclusive, and Sections 17 to 22, inclusive, and as to matters not covered thereby according to the laws and usages of the Port of New York. If the owners shall have exercised due diligence to make the vessel in all respects seaworthy and properly manned, equipped, and supplied, it is hereby agreed that in case of danger, damage, or disaster resulting from faults or errors in navigation, or in the management of the vessel, or from any latent or other defects in the vessel, her machinery or appurtenances, or from unseaworthiness, whether existing at the time of shipment or at the beginning of the voyage (provided the latent or other defect or the unseaworthiness was not discoverable by the exercise of due diligence), the shippers, consignees, and/or owners of the cargo shall nevertheless pay salvage and any special charges incurred in respect of the cargo, and shall contribute with the shipowner in general average to the payment of any sacrifices, losses, or expenses of a general average nature that may be made or incurred for the common benefit or to relieve the adventure from any common peril.

2 This shipment until delivery at the port (B) second above mentioned is subject to all the terms and provisions of, and all the exemptions from liability contained in, the Act of Congress of the United States, approved on the 18th day of February, 1893, and entitled, "An Act relating to the navigation of vessels, etc." This shipment is subject to the provisions of Sections 4281-4286, inclusive, of the Revised Statutes of the United States.

3 (a) The value of each package shipped hereunder does not exceed two hundred and fifty dollars unless otherwise stated herein, on which basis the freight is adjusted, and the ocean carrier's liability shall in no case exceed that sum or the invoice value (including freight charges, if paid, and including duty if paid and not returnable), whichever shall be the least, unless a value in excess thereof be specially declared, and stated herein, and extra freight as may be agreed upon paid. Any partial loss or damage for which the carrier may be liable shall be adjusted pro rata on the above basis.

(b) Notice of loss, damage, or delay must be given in writing to the carrier receiving the goods for transportation between Port A and Port B within 30 days after the removal of the goods from the custody of such carrier, or, in case of failure to make delivery, within 30 days after the goods should have been delivered, provided, that if such loss or damage is apparent at the time of the removal of the goods from the custody of the carrier, the notice of loss, damage, or delay must be given before the goods are so removed, in which case notation of the loss or damage made on the receipt given to the carrier for the goods shall constitute the notice herein required. Written claim must be filed with such carrier within nine months after giving the aforesaid written notice. Unless such notice is given and claim filed as above provided, the carrier shall not be liable. No suit to recover for such loss, damage, or delay shall be maintained unless instituted within one year after the giving of the written notice of loss, damage, or delay above provided for.

(c) The carrier shall not be entitled to the benefit of any insurance that may have been effected by the shipper upon the goods shipped thereunder.

4 Shippers shall be liable for any loss or damage to vessel or cargo,

carrier's bill of lading. Though issued at lower freight rates, the parcel receipt does not fully obviate the difficulty occasioned by minimum bills of lading. The special restrictions imposed, especially those regarding value, hamper its use for banking purposes, and for the shipping of articles of higher value.

caused by inflammable, explosive, or dangerous goods, shipped without full disclosure of their nature, whether such shipper be principal or agent, and such goods so shipped may be thrown overboard or destroyed at any time without compensation.

5 The carrier shall have a lien on the goods for all freights and charges and any sums that may be due under this bill of lading, and also for all fines or damages which the vessel or cargo may incur or suffer by reason of the illegal, incorrect or insufficient marking, numbering or addressing of packages or description of their contents.

6 If the vessel is prevented from reaching her destination by quarantine, the carrier may discharge the goods into any depot or lazaretto, under suitable available protection, dispatching notice thereof to the consignee, if named herein (at destination named), and otherwise to the shipper, and such discharge shall be deemed a final delivery under this contract, and all the expenses thereby incurred on the goods shall be a lien thereon.

7 The vessel may commence discharging immediately on arrival, and discharge continuously, any custom of the port to the contrary notwithstanding, the Collector of the Port or other proper officer being hereby authorized to grant a general order for discharge immediately on arrival, and if the goods be not taken from the vessel by the consignee directly they come to hand in discharging the vessel, the master or vessel's agent to be at liberty to enter and land the goods, or put them into craft or store at the owner's risk and expense, dispatching notice thereof to the consignee, if named herein (at destination named), and otherwise to the shipper, when the goods shall be deemed delivered and vessel's responsibility ended, but the vessel and carrier to have a lien on such goods until the payment of all costs and charges so incurred.

8 If on a sale of the goods at destination for freight and charges, the proceeds fail to cover said freight and charges, the ocean carrier shall be entitled to recover the difference from the shipper, owner, or consignee. Full freight is payable on damaged or unsound goods, but no freight is due on any increase in bulk or weight caused by the absorption of water during the voyage. Freight prepaid will not be returned provided the goods have been loaded on the vessel.

9 In the event of claims for short delivery when the vessel reaches her destination, the value shall be adjusted as per conditions under Clause 3, less all charges saved, vessel being responsible only for such part of the goods as has been actually delivered to the vessel at the port (A) above mentioned, and vessel not liable for any loss, or damage that may have occurred before such delivery, while agreeing to present promptly to inland carriers for accounts of owners of goods any claims for shortage or loss or damage that may have occurred before delivery of the goods at the port (A) above mentioned.

10 Goods on wharf awaiting shipment or delivery shall not be at ocean carrier's risk of loss or damage not happening through the fault or negligence of the owner, master, agent, or manager of the vessel, any custom of the port to the contrary notwithstanding.

11 This bill of lading, duly indorsed, shall be given up to the vessel's consignee in exchange for delivery order.

12 Freight payable on weight is to be paid on gross weight landed.

SHIP'S MANIFEST

When a considerable number of bills of lading for a given port are ready for delivery to the shipper the freight manifest from ocean vessel, unless herein otherwise provided, or unless the carrier elects to take the freight on the bill of lading weight, but inland freight and charges paid on wheat, peas, maize, or other grain, or seed, or other bulk articles, from point of shipment to seaboard shall be paid by consignee at destination on the weight delivered on board ocean vessel

13 If, from any cause, the whole or any part of the articles specified herein do not go in the vessel for which intended, the carrier shall forward them by other vessel or vessels employed by the ocean carrier, or by other vessels

14 The property covered by this bill of lading is subject to all conditions expressed in the regular form of port bill of lading in use by the steamship company on the date of execution of this document and on file in accordance with the rules and regulations of the United States Shipping Board and/or the Interstate Commerce Commission, but if any of such conditions are in conflict with conditions 1 to 15 of Part II of this bill of lading, the latter conditions shall control

15 If the goods covered by this bill of lading are consigned hereunder beyond the port (B), the transshipment to connecting carrier shall be at the risk of the owner of the goods, but at vessel's expense, and all liability of the ocean carrier hereunder terminates on delivery to connecting carrier

PART III With respect to the service after delivery at the port (B) second above mentioned, and until delivery at ultimate destination if destined beyond that port, it is agreed that—

1 In case the regular vessel service to final port of delivery should for any reason be suspended or interrupted, the ocean carrier, at the option of the owner or consignee of the goods, or the holder of the bill of lading, may forward the goods to the nearest available port, this to be considered a final delivery, or to store them at the port (B) second above mentioned at the risk and expense of the goods until regular service to final port of destination is opened again

2 The property shall be subject exclusively to all the conditions of the carrier or carriers completing the transit

3 The addressing of arrival notice to the notify party shall be exclusively the obligation of the carrier completing the transit

AND FINALLY, in accepting this bill of lading, the shipper, owner, and consignee of the goods, and the holder of the bill of lading, agree to be bound by all its stipulations, exceptions and conditions, whether written or printed, as fully as if they were all signed by such shipper, owner, consignee or holder

In WITNESS WHEREOF, the agent signing on behalf of the said THE (Issuing) Company and of the said Ocean Carrier or

Ocean Vessel and her owner, severally and not jointly, hath affirmed to Bills of Lading, all of this tenor and date, one of which Bills being accomplished, the others to stand void

Shipper

By

Agent

On behalf of carriers severally but
not jointly

clerks of the freight traffic department begin the work of manifesting Ship's manifests are required by the Government of the United States and those of foreign countries, yet they are so important in vessel operation that they may also be included among the shipping documents required by the carriers Ship's manifests are prepared both in the foreign and coastwise trades although the requirements of the United States Government as to the forms prescribed are not uniform The copies prepared for the customs authorities need to contain the items required by the U S Government The sample *outward foreign manifest* reproduced in Form 16 which is the abbreviated manifest required in the export trade requires an *oath of master to manifest on clearing outward* A prescribed form of oath is provided on the reverse side of the manifest For the steamship company's records a complete manifest such as is reproduced in Form 17 is prepared This complete form lists details as to bill of lading numbers, marks and numbers, packages and contents, shippers and consignees, destination, weight, measurement, rates, freight and amounts prepaid and to be collected The detailed items listed in the complete manifests prepared by different ocean carriers are not uniform

Manifesting requires rapidity because it cannot be completed until proper data have been received from the wharf department and until the bills of lading are ready for delivery to the shipper, and because the manifest of a large vessel carrying general cargo comprises many sheets and needs to be completed before or shortly after the vessel obtains its clearance from the customs authorities Manifesting is exacting work, also, because absolute accuracy is required It is sometimes done by hand, but more commonly on large, especially designed billing machines, able to make a sufficient number of copies at one writing

Careless typing is not permissible as consular authorities are usually exacting with respect to erasures or corrections The sources from which the manifest clerks obtain the various cargo items listed in the ship's manifests are the bills of lading and exporter's declarations

The ship's manifest is used for various purposes

- 1 Before clearing from a port in the United States to a foreign port, an attested copy of the ship's manifest needs to be

[illegible]

FORM 16A OUTWARD FOREIGN MANIFEST

delivered to the port collector who then grants a clearance for the vessel and her cargo. He retains an attested copy, which together with the shippers' manifests or export declarations, becomes the basis for the official export statistical returns of the United States and serves as a means for the enforcement of such Government regulation with respect to vessels or cargoes as may be in effect at the time of clearance. If immediate clearance is desired, before the completed manifest is available, a *bond to produce complete manifest and export declarations* within a

OCE. 200. 1874

DEPARTMENT OF COMMERCE
BUREAU OF NAVIGATION

OATH OF MASTER TO MANIFEST ON CLEARING OUTWARD

(U. S. 2055 2057 2073, 4194)

DISTRICT OF _____, PORT OF _____

I, _____, Master of the _____

(Name of vessel)

bound from the Port of _____

(Name of port)

do solemnly swear and truly swear that the Manifest of the Cargo on board the above-named vessel, now delivered by me to the Collector of this Port, and subscribed with my name, contains, according to the best of my knowledge and belief a full, just, and true account of all the goods, wares, and merchandise now actually laden on board the said vessel and of the value thereof, and the foreign places or countries to which the same are truly intended to be landed and if any other goods, wares or merchandise shall be laden or put on board the said vessel previous to her departure from this Port, I will immediately report the same to the said Collector. I do also swear that I verily believe that the duties on all foreign merchandise therein specified have been paid or secured according to law and that no part thereof is intended to be reloaded within the United States and that if by distress or other unavoidable accident it shall become necessary to reload the same, I will forthwith make a just and true report thereof to the Collector of Customs of the District wherein such distress or accident may happen. And said cargo is truly intended to be landed at the place named in this manifest. So help me God.

I do further swear that I have not received on board the above-named vessel, and have not under my care or within my control, and that I will not receive and convey any letters or letter packets, addressed to any foreign country which have not been delivered to me from the Post Office, except such as relate to the cargo and are addressed to the owner or consignee of said vessel, or such as are inclosed in a United States stamped envelope of a denomination sufficient in amount to cover the United States postage legally chargeable thereon if the same had been posted and transmitted by the regular mail.

I do further swear that no live cattle, sheep, goats, or swine are or will be taken on board for export, other than those for which certificates have been issued so required by Act of June 20, 1908 and that there is not, and will not be taken on board for export, any meat or meat food products which have not been legally inspected and passed in accordance with the foregoing act.

Signature

Sworn to and subscribed before me this _____ day

of _____, 19____

Deputy Collector

FORM 16B REVERSE OF OUTWARD FOREIGN MANIFEST

prescribed number of days after the clearance of the vessel must be provided

2 Upon arrival at foreign destination, a copy of the manifest needs to be presented, as a requirement incident to entry. Vessels entering American ports from abroad are similarly required to present manifests to the customs authorities upon entry. These manifests are used in the collection of import duties, in the enforcement of customs regulations, and in the preparation of the statistical returns in the import trade.

3 The ship's manifest serves as a routing document and as a check upon cargo at the time of discharge

4 It serves as a basis for the company's freight revenue accounts

5 In time of war, it is the principal cargo document examined when a merchant vessel is detained at sea by a man-of-war with a view to identifying its cargo as to kinds of commodities, their origin and destination

DOCUMENTS ISSUED BY CARRIER WHEN DISCHARGING

When instead of loading cargo and leaving port an ocean carrier enters port, it proceeds to discharge its cargo after having satisfied the customs requirements, but it may not legally release the cargo to the consignee until he presents a customs permit for examination of the customs guard at the pier. This permit indicates that the consignee has complied with the requirements of the customs authorities concerning imported merchandise.

The inbound freight department of the steamship line in its dealings with the consignee sends to him an *arrival notice and freight bill* which informs him of the arrival of the items listed and instructs him to surrender it immediately at the steamship office together with the original bill of lading properly endorsed, and to pay the freight charges shown on the bill.

Entry is at the same time made in a book of record, to be checked against the cashier's receipts of freight payments. This notice of arrival does not enable the consignee immediately to obtain his merchandise at the piers. It is followed by a *final notice of arrival*, which informs the consignee that the cargo is ready for delivery and that unless removed previous to 5 P. M. of a specified date, it will be stored at owner's risk and expense and without further notice. Thereafter, storage charges accumulate.

The consignee, moreover, cannot obtain his cargo until he obtains the company's dock or *delivery order* which in case of collect freight shipments is given to him only after payment of freight and delivery of the negotiable bill of lading properly endorsed. If, however, the freight has been prepaid the delivery order is sent to the consignee "at the same time as the arrival notices, or shortly after, subject to presentation of the original

endorsed bill of lading''⁸ It gives authority to the delivery clerk at the company's pier to release cargo to the consignee When the cargo is finally delivered the receiver is required to sign a *delivery receipt*

In case the consignee is unable to present the original bill of lading with proper endorsement because he has not received it from the shipper, he may furnish a bond The consignee issuing the bond avers that he is "entitled to the immediate possession of said goods but has not yet received the bill of lading covering the same, and that he is entitled to said bill of lading, and that the said bill of lading has not been negotiated, sold or transferred" He pledges himself to protect the carrier against any consequences which may be caused by the delivery of the cargo to him The difficulty, expense and delay incident to the arrangements of such a bond emphasizes the importance of promptly sending a properly endorsed bill of lading to the consignee

If upon arrival the captain of the vessel fears that cargo may have suffered damage for which the carrier should not be held responsible, or that the vessel and its fittings have been damaged, he may protect them by making "protest," that is, filing a *note of protest* Later, should actual damage be discovered, he follows this note of protest with an *extension of protest* The former is a general protest against claims for damage due to the perils of the sea encountered, while the latter recites more specifically the damage against which the captain protests responsibility These marine protests constitute an important part of the evidence required by insurance companies before losses are settled

⁸ J. A. Slechta, paper on "Practical Steamship Operation"

CHAPTER XVIII

VESSEL DOCUMENTS REQUIRED BY THE UNITED STATES GOVERNMENT

In addition to the cargo and vessel documents required by the carriers in their dealings with shippers, consignees and charterers and in the conduct of their transportation business, many official documents are required by the United States Government. They may, to facilitate description, be divided into (1) general ship's papers, (2) vessel clearance documents, (3) vessel entry documents, (4) documents required of exporters, and (5) documents required of importers.

GENERAL SHIP'S PAPERS AND CLEARANCE DOCUMENTS

Each vessel engaged in the overseas trade is required to obtain an official *ship's register* and a *measurement certificate* (Forms 1 and 18) which are obtained from the registry authorities of the country in which it is documented. American vessels obtain their registers through the collector of customs, a duplicate being sent to the Director of the Bureau of Navigation and Steamboat Inspection, Department of Commerce. The register, which is signed by both of these officials, indicates the name, official number and ownership of the vessel, the name of the master, when and where it was built, the home port, the vessel's principal dimensions and other identification data, the capacity of the spaces indicated in its gross tonnage, the space exempted from measurement, the spaces deducted from gross tonnage and the vessel's net register tonnage. Preliminary to the issue of a certificate of registry the Government requires a *builder's certificate*, a *surveyor's certificate of measurement*, an *owner's oath*, a *master's oath*, and in case of a vessel sold or transferred to a citizen of the United States, an official *bill of sale*, all of which are executed on prescribed forms.

Vessels are also required to carry an *inspection certificate* issued by the inspectors of the United States Steamboat Inspec-

tion Service, which is now a unit within the Bureau of Navigation and Steamboat Inspection. The certificate for American steam or motor vessels is issued after inspection of hull, boilers and equipment and in addition indicates the required complement of officers and crew and the maximum number of passengers which the vessel may carry. The forms of inspection certificate for American steamers and motor boats, for sailing vessels and barges carrying passengers for hire, for sea-going barges of 100 tons gross or over, and for foreign steamers carrying passengers differ in various respects.

DOCUMENTS REQUIRED ON CLEARING A VESSEL IN FOREIGN TRADE

In the overseas trade the crew of an American vessel engaged at an American port is signed up before a United States Shipping Commissioner, or at ports where such official is not stationed, before the collector or deputy collector of customs, and at foreign ports before a consular officer or commercial agent if such officer is located at the port of shipment. The document signed is known as the *shipping articles* (Form 19) and is the official agreement between master and crew, as to wages, scale of provisions, period of service and conditions of labor, and also embodies the sections of the United States navigation laws with reference to advanced wages and allotments, medicine and slop-chest, and corporal punishment.

Before clearance, the master of an American vessel is similarly required to produce two copies of its *crew list*, containing the name and description of every member of the crew, the capacity in which he is employed, his birthplace, citizenship, and the residence or address of his next of kin. One copy is certified and used on return of the vessel to the United States in accounting for its crew to the collector at the port of entrance. Both the ship's articles and the crew list carried on board the vessel must upon request be produced before any consul or commercial agent of the United States.

Under the Seamen's Act of 1915, the vessel's master before clearing makes oath to the effect that the requirements of the Seamen's Act of 1915 as to percentage of crew able to understand orders given by the vessel's officers, percentage of able seamen,

etc., has been complied with. The master, or agent, is similarly required to certify on a prescribed form as to the vessel's equipment with proper radio appliances and operators as required by law. Failure to qualify in this respect does not authorize the refusal of clearance, but the law imposes a fine of not more than \$5,000.

If meat or meat food products are included in cargoes destined for certain foreign countries, duplicate copies of the export inspection certificate issued by the Department of Agriculture to the exporter must be filed with the vessel's manifest. A *port sanitary statement* showing the number of cases of and deaths from various contagious diseases reported at its port of clearance during the preceding two weeks is obtained from the United States Public Health Service, and any bills of health that may be required by foreign countries must be obtained from their respective consular authorities. If fumigation is required, proof of actual fumigation must be presented before clearance. An oath or affirmation that mail matter is not being carried unlawfully is a further requirement.

The *ship's manifest*, described in the preceding chapter, is also to be included among the official documents required by the Government because it is used not only for purposes of vessel operation, freight handling and accounting but also to satisfy legal requirements at time of vessel clearance and entry. If a foreign trade vessel desires to clear before delivery of its complete manifest, a "request for immediate clearance" must be made, and a bond to produce it not later than the fourth business day after the clearance of the vessel. There are special requirements as to vessels carrying explosives or inflammables. The vessel is likewise held accountable for delivery of the sworn export declarations of cargo shippers with the complete manifest.

Having fulfilled all the legal requirements, the customs authorities authorize the clearance of the sea-going cargo vessel by issuing an official "*Clearance of Vessel to a Foreign Port*" (Form 20). *Cargo and passenger reports* containing required statistics must be filed with the collector of customs for use by the United States Shipping Board Bureau of the Department of Commerce.

The United States of America

DEPARTMENT OF COMMERCE
BUREAU OF NAVIGATION

CLEARANCE OF VESSEL TO A FOREIGN PORT

Laws 127, 151, 175, 195, 197, 198, 199 and 225, Customs Regulations, 1923; Section 4191 (Revised Statutes)

District of _____

Port of _____

These are to certify all whom it doth concern

That _____
Master or Commander of the _____
burden _____ Tons, or thereabouts, mounted with
Guns, navigated with _____ Men,
_____ built, and bound for _____

with passengers and having on board _____

MERCHANDISE AND STORES,

hath here entered and cleared his said vessel, according to law

Given under our hands and seals at the Customhouse of _____
this _____ day of _____
one thousand nine hundred _____ and in the _____
year of the Independence of the United States of America,

11-1904

Collector of Customs,

DOCUMENTS REQUIRED ON ENTERING A VESSEL IN FOREIGN TRADE

When a vessel arrives within four leagues of the coast or within the limits of a customs district in which cargo is to be discharged, the master is required to produce the original ship's manifest for the inspection of the customs official who first boards the vessel and to deliver to him a copy of the manifest. After examining the original and comparing it with the copy, such official certifies on the original as to its production and on the copy as to its agreement with the original, and forwards the copy to the collector of customs. Immediately upon landing and before entering at the custom-house, the vessel's master is required to mail or deliver a copy to the comptroller of customs of the district in which the port of entry is located, and to make oath that he has done so and that the copy mailed is a true copy. Should the manifest be corrected thereafter he must likewise mail or deliver a copy of the corrected manifest and make affidavit to such mailing.

The original manifest is available for use in entering the vessel and an uncertified copy must also be available for the discharging inspector's use in making up the cargo book.

If the vessel has not been boarded by a customs official, the master is required within 24 hours after arrival to report the arrival to the collector. The vessel may depart, at the option of the master, after making such report and before the expiration of 24 hours.

In making formal entry, the master is required to make oath on a prescribed form within 48 hours after arrival. Besides depositing the original manifest and a copy with the collector, it is necessary to file a sworn *list or manifest* of passengers.

This passenger list indicates the names of all passengers taken on board in any foreign country, their sex, whether married or single, whether citizens of the United States or aliens, the number of pieces of baggage, the age of children eight years of age or under, and in case of steerage or third-class passengers the location of the compartment or space occupied by each. In case of deaths, it also specifies the date, age and cause. The passenger list is submitted for the inspection of the customs officer who first requests its production, and a correct list is subsequently delivered to the customs collector.

UNITED STATES CUSTOMS SERVICE

APPLICATION AND PERMIT TO LADE OR UNLADE MERCHANDISE, BAGGAGE, OR PASSENGERS

DISTRICT No. _____, PORT OF _____, 192__

To the COLLECTOR OF THE PORT

For: Bond or security having been given as is required by the provisions of the Act of February 18 1901, as amended by the Acts of February 7 1920 and June 17 1920 application is hereby made for the lading or unlading, either by day or during other than official hours

under the said act of merchandise, baggage, or passengers on or from the _____

of the _____ Line at or upon _____, arrived or expected to arrive from _____, on _____, 192__ immediately after her arrival at the place named or at night after regular entry at the Customhouse.

It is hereby agreed that all cargo discharged under this application shall remain upon the wharf or other place of unlading until released by a permit therefor or released in conformity with the terms of the regular permit-to-land, to be issued after the entry of the vessel at the Customhouse, and that the said vessel and its owner shall be held liable for all duties which may be found to be due the Government on account of any portion of the cargo lost or stolen from the wharf after its discharge from the vessel and before the delivery of the permit-to-land permit; and, furthermore, that the liability to the owners of any portion of the cargo and responsibility for its care shall not be impaired nor affected by any proceedings under this application. Special application is made to lade or unlade during other than official hours on _____ (Number of days) 192__ at _____ (Hour) (P. M.) (A. M.)

Employees requested _____ (State, if known, number of inspectors, warehousemen, pilots, stevedores, etc.)

Bond for \$ _____ dated _____ 192__

Amount of deposit \$ _____

Verified by _____ (Signature, Seal, Clerk) Address _____

PERMIT (No 728)

To the SURVEYOR OR APPRAISER.

Application approved and license granted. This permission will not become available, however, until after the manifest of said vessel shall have been delivered to the hearing office, and no part of such cargo shall be moved from the wharf, lighter or other place of unlading before the issuance of a permit to land therefor. You will assign the required number of inspectors, warehousemen, pilots, and other employees and have their services noted below. If no action is taken, note below.

_____ 192__ Deputy Collector

Preliminary entry made _____ 192__ Hearing Officer

Station No. _____ **STATEMENT OF SERVICES RENDERED** (Enclosure)

We, the undersigned, certify that the statement of services rendered, noted opposite our respective names is correct and true.

Date	Name of Officer	Days or Part	Amount of Service	Description of Services	Signature—Name of Officer, etc.

(Stamp) S-728

FORM 21 PRELIMINARY APPLICATION AND PERMIT TO LADE OR UNLADE MERCHANDISE, BAGGAGE OR PASSENGERS

The master of an American vessel is furthermore required to produce to the collector of the port his register, crew list and the clearance and bill of health, issued to his vessel at the port or ports from which the vessel arrived. The register is retained by the collector until he grants a clearance to the vessel. Foreign

CUSTOMS FORM #17
TARIFF OF THE UNITED STATES

PAYMENT IN DUPLICATE

No. _____ Date _____

GENERAL APPLICATION AND PERMIT TO LADE OR UNLADE UNITED STATES CUSTOMS SERVICE

District No. _____ Port _____ Station No. _____ 193

To the Collector:

I the undersigned, the _____ of the _____
(Master agent, or owner) (Firm) (Vessel)

arrived from _____ docked at _____

at _____ having complied with all customs requirements, hereby make application—

List of Articles	NOTATIONS
1 To land passengers, baggage, and effects of crew _____ <small>(State port or sea)</small>	
2 To land the following articles of equipment for repair or adjustment and to reload same, viz: _____ <small>(Ship's documents, sails, trawl, main, barbed, etc.)</small>	
3 To land the following articles of equipment not to be reladen subject, however to free or duty paid entry (Art. IXX, O R. 1901) viz _____	
4 To land containers of American origin whose contents were consumed on board, viz: _____ <small>(Boards, instruments)</small>	
5 To discharge ballast which consists of _____ and which I declare to be of no commercial value and not brought as merchandise.	
6 To take on board while unloading during the _____ the following articles, viz _____ <small>(Day or night)</small> <small>(Ballast, stores, fuel, etc.)</small>	
7 To retain on board the cargo manifested for _____	
8 _____	

Master Owner or Agent.

Address _____

PERMIT

To the Surveyor or Inspector: _____ (No Fee)

Declared to before me and application approved and license granted provided there is no risk to the revenue Inspectors will make their return hereon. You will note below any services performed during other than official hours or beyond _____ days allowed by law for discharge of this vessel.

_____ 193 _____ Acting Deputy Collector

INSPECTOR'S RETURN

Station No. _____ 193

To the Collector:

All articles enumerated above were discharged, laden, reloaded or retained on board in accordance with the terms of this application and permit and proper return made thereof except, viz _____

SERVICES PERFORMED

Date _____ 193	Time employed _____	Rate _____	Amount _____
			Inspector _____

FORM 22 GENERAL APPLICATION AND PERMIT TO LADE OR UNLADE

vessels are similarly required to produce to the collector their registers and their clearances and bills of health issued at the last port of departure, but the registers are then deposited with the consular officer of their native country, and a certificate from such consular officer to the effect that the register has been deposited with him is then delivered to the collector. The con-

sular officer retains the register until the master obtains a clearance from the port collector

Foreign vessels are not required to deliver their crew lists. Receipts of any fees or charges paid to American consular officers abroad are also delivered to the port collector, together with written statements covering consular services rendered to the vessel without the payment of fees. Before formal entry is made, but after report of arrival has been made, a vessel may make a *preliminary entry* (Form 21). Application may be made by the master, agent or consignee on a prescribed customs form and a *bond* in accordance with the requirements of the customs regulations must be given. If merchandise, baggage or passengers are to be unloaded at night or on Sunday or a holiday, it is also necessary to obtain a *special license* to unload.

As the cargo of a vessel entering from a foreign port is discharged under supervision of the customs authorities, the agents or owners prior to the vessel's arrival frequently make application to unload either by day or night or on Sundays and holidays, and for the assignment of inspectors, weighers, gaugers, samplers, etc. At the time of making entry at the custom-house the master, however, is required to apply for a *general permit to unload* (Form 22), unless it was previously issued in connection with the preliminary entry.

Should the owners of the vessel desire to retain unpermitted cargo upon the wharf they are required to make *application to allow unpermitted cargo to remain upon wharf* and to indemnify the collector against any losses, claims or risks resulting from the granting of such application. The vessel owner, agent, or master may thereupon receive a *permit to retain cargo upon wharf* for a specified time. Unpermitted merchandise not covered by such special license or permit to remain on the wharf is sent to a public store or bonded warehouse named in a so-called "*general order*" issued to the customs inspectors on board by the port collector.

On the arrival of vessels from foreign ports it is necessary to obtain a *certificate of sea stores* covering stores placed under seal by the customs officers. When tonnage taxes are paid, a *certificate of payment* is issued by the customs collector. The *cargo and passenger* reports required for the use of the United States

Shipping Board Bureau of the Department of Commerce, previously referred to in connection with vessel clearance, must also be filed within ten days after the entrance of a vessel

The documents and requirements referred to in this chapter apply specifically to vessels engaged in the overseas foreign trade Those applicable in the coasting trade and fisheries, in the trade with contiguous foreign countries, and, in the trade with the insular possessions of the United States are equally specific They differ in many respects, and the requirements in each of these trades are set forth in separate sections of the "Customs Regulations of the United States "

CHAPTER XIX

SHIPPING DOCUMENTS REQUIRED BY THE UNITED STATES AND FOREIGN GOVERNMENTS IN FOREIGN TRADE

WHILE steamship companies are concerned directly with the ship's papers and the vessel's entrance and clearance documents referred to in the preceding chapter, they are also concerned with many of the official documents required of importers and exporters

EXPORT DOCUMENTS REQUIRED BY UNITED STATES GOVERNMENT

The bill of lading discussed in Chapter XVII is a commercial document governing the relations between shippers and ocean carriers, but it is also an official document required by law, its contents are legally prescribed in part, and its production is required at time of entry of imported merchandise. Several documents are, however, specifically required from exporters by the Government when merchandise is shipped abroad, and the ocean carrier needs to check up the exporter

The exporter is required to prepare a sworn *export declaration*, or shipper's manifest (Form 23). The exporter makes oath that the merchandise listed in the declaration is a complete account of his entire shipment, that its description, quantity and value are correctly stated, and that the consignee named is the actual consignee. The declaration contains the name and address of the shipper, his signature or that of his authorized agent, the place of original shipment, the port of exportation, the destination, the name of the steamer and carrier, the marks and numbers contained on the package, the number and kind of containers, description and quantity of the merchandise, and its selling price or market value at time and place of shipment for exportation, stated separately for wares of domestic origin, including goods altered or remanufactured in the United States, and foreign products in the same condition as when they were imported.

[illegible]

FORM 23 SHIPPER'S EXPORT DECLARATION

Each export declaration is given an official number. In case of shipments to foreign countries it must at present be prepared in duplicate except for bonded shipments in transit through the United States from one country to another. The customs collector retains the original declaration and certifies the duplicate "for presentation by the exporter to the transportation com-

pany to be attached to outward vessel or car manifest " Both copies must be signed and the original verified by oath, except in the case of shipments to or through Canada or Mexico by car, vehicle or ferry, or when the value of the shipment is less than \$100 Export declarations are required as a source of export statistics and are an essential requirement in the clearance of vessels When the original export declaration has not been received, a *pro forma export declaration and bond* may be filed with the ship's manifest

Special inspection certificates need to be presented with the export declaration in the exportation of certain commodities where required by the Department of Agriculture An export meat inspection certificate, which covers meat or meat food products and certifies that the products shipped have been inspected by an inspector of the Bureau of Animal Industry and passed as sound and wholesome and were derived from animals that were free from disease, is required when exports are destined to certain foreign countries Similar forms of certificates are issued for live animals, and process or renovated butter must be accompanied by *certificates of purity*

When merchandise containing imported materials are to be exported under the drawback privilege which allows the exporter 99 per cent of the import duty paid on such materials, an *application* for the establishment of the rate of drawback must be addressed to the Bureau of Customs When the shipments are about to be made, a *notice of intent to export* in duplicate must be filed with the collector of customs This notice is required at least six hours, but not over ninety days, before the products to be exported are loaded for shipment A third copy of this notice must be delivered to the customs officer in charge at the place of loading The entire shipping transaction is subject to supervision, and records kept in accordance with government requirements are open to customs inspection The regulations governing completion of a drawback claim require the filing of a *drawback entry and certificate of manufacture in duplicate* within two years from the date of clearance Where the merchandise identified in this document was imported at a port located in a different customs collection district, the collector at such port may be requested to issue a *certificate of importation*

When the imported materials were not imported by the manufacturer himself, a *certificate of delivery* or official evidence of the existence of such a certificate is required. "Where the imported material used has passed through some process of manufacture before delivery and the partly or completely manufactured article is used in the manufacture of some other article for exportation, or where completely manufactured articles are purchased for exportation without further manipulation, a *certificate of manufacture and delivery*" is required. Should the collector at the port of exportation or at the port where the drawback entry is filed have reason to believe that the shipment is not a bona fide exportation, a foreign *landing certificate* may be required.

DOCUMENTS REQUIRED OF IMPORTERS BY UNITED STATES
GOVERNMENT

The United States Government requires the importer to present the bill of lading covering imported cargo, thereby conferring upon this shipping document still another legal function in addition to those mentioned previously. A special document known as a *consular invoice* is also required in the entry of imported merchandise at the custom-house. The foreign exporter is expected to prepare an official invoice containing a complete list of the items shipped to the United States, how they are packed, how the packages are marked, their quantity and price per unit, the total amount paid or to be paid, the cost of packing and all other costs, charges and expenses, all rebates, drawbacks and bounties, the kind of currency, whether gold, silver or paper, the port of entry to which the merchandise is destined, and the time when, the place where, and the person to whom it is sold or agreed to be sold. If the merchandise is shipped to the United States otherwise than in pursuance of a purchase, the consular invoice states the place from which shipped, the time when and the person to whom it is shipped. In this case, moreover, "the value for each item is stated in the currency in which the transactions are usually made, or, in the absence of such value, the price in such currency that the manufacturer, seller, shipper, or owner would have received, or was willing to receive, for such merchandise if sold in the ordinary course of trade and in the

(Amended Nov. 1991)

(Print last date)

Invoice of _____ purchased or agreed to be purchased
by _____ of _____
from _____ of _____
as per order accepted _____ (Date)
to be shipped per _____

STATE WHETHER PRICES IN THIS INVOICE ARE IN GOLD SILVER, OR PAPER CURRENCY

[illegible]

Norm 1—"Manufacturer's Numbers." This column must include manufacturer's grade quality marks, numbers, or symbols.

(Signature of seller or shipper
or agent of either signing in the
name of his principal.)

Signature of Seller or Shipper

By (authorized agent)

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FORM 24A. UNITED STATES CONSULAR INVOICE

usual wholesale quantities in the country of exportation " In case of imports that have been purchased, the value is stated in the currency of the particular transactions, in United States dollars, if the transaction was made in American currency, and in pounds sterling, if in British money, or in German marks, if in German money

individuals authorized in the United States consular regulations Should the consular officer be of the opinion that the prices or value stated in the consular invoice are incorrect, he states what he regards the correct value to be under the heading "consular notations" The invoices are required to be stamped, and the stamps to be canceled by consular officers to show the payment of fees They are prepared in triplicate, or in sets of four, for merchandise intended for immediate transportation under bond without appraisement from the port of arrival The original and, if requested by the exporter, the quadruplicate, are delivered to the exporter, who forwards them to the consignee for use in making entry, the triplicate is transmitted to the collector of customs at the port of entry, and the duplicate is filed in the office of the consular officer by whom the invoice was certified

The entry of all importations whether free or dutiable, at the custom-house by the importer, or by a licensed custom-house broker acting for him, is carried out in accordance with a highly technical code of customs regulations The documents or forms required are too numerous for complete description They vary according to kinds of entry as follows entries for consumption, warehouse, re warehouse, combined re-warehouse and withdrawal for consumption, exportation under warehouse withdrawal for transportation, withdrawal at original and secondary ports for consumption or exportation, exportation, temporary free importations under bond for exportation, appraisement, informal entry of packed packages, special delivery packages, preliminary entry and immediate delivery; immediate transportation without appraisement, transportation and exportation, withdrawals from warehouse at original and secondary ports for transportation, exportation with benefit of drawback, customs mail entries, baggage declarations and entries, and entry of equipment and repairs to vessels Further variation is due to special requirements for different kinds of imported commodities

The correct entry form prepared by the importer or his agent must be presented with the bill of lading and consular invoice, or in case of inability to produce the consular invoice, a commercial invoice or a statement of the value or price paid and a bond for the production of the consular invoice within six months

Certain kinds of imported goods, however, are exempted from requirements as to the filing of consular invoices. In case of inability to produce the bill of lading, the collector may accept a shipping receipt or other satisfactory evidence and a *bond to produce bill of lading*.

In the proper entry form, the importer is required to list the imported wares by description, shipping marks and numbers, to state the foreign value of each kind of merchandise according to its classification in the tariff laws and, except in case of entries by appraisement, the rate of duty applicable, and other data required in the customs regulations. The price or value stated in the consular invoice needs to be raised or lowered in the entry blank so as to disclose the true wholesale market value of the wares prevailing in the foreign country at the time of exportation. To this wholesale market value are added cost items such as packing charges, the dutiable value being the wholesale market value of the wares packed ready for shipment. The entry blank is accompanied by an *importer's declaration and oath*.

CUSTOM-HOUSE BROKERS AND SHIPPING DOCUMENTS

The entry of imports requires so much technical information and such an intimate knowledge of custom house practice that it has become a business or profession for many "custom house brokers." These men are licensed by the collector of customs in the district in which they operate. They act for importers in the clearance of imports through the custom house. They attend to the necessary formalities, advise the importer as to estimating import duties, pay the duties and turn over the delivery order which they receive from the port collector to the importer, or to his truckman or forwarder. They similarly look after the part of the shipment held by the appraisers for examination and attend to final liquidation of the duties. Should the importer elect to place his merchandise in a bonded warehouse, his custom-house broker will arrange this for him and see that the goods are cleared when the importer is ready to withdraw them. If the imported goods are ordered for direct shipment from the ocean port to an interior destination so as to avoid double handling, a custom-house broker may be engaged to act as a forwarding agent, and he will forward the goods to the interior point in bond in

conformity with the requirements of the customs service The goods are transferred to bonded railroad cars in bonded trucks or lighters, and are shipped under a special "*carrier's manifest of merchandise in bond*," the carriers assuming the responsibility of seeing that the imported merchandise will not be tampered with until word is received from the interior customs officer to the effect that all requirements of the customs service have been complied with A custom-house broker's license authorizes him to transact business only in customs collection districts "In order to represent a claimant before the Treasury Department in the City of Washington, application for enrollment as attorney or agent must be made in conformity with the requirements of the Department "

The fee paid to custom-house brokers by importers for entry of imported merchandise usually ranges from \$1 50 to \$10 00 for each shipment It is generally not based upon the value of separate shipments, for the amount of work required may be no greater for a valuable consignment than for one involving a small sum

Custom-house brokers are also a factor in the operation and traffic management of the steamship business, for they frequently attend to the entrance and clearance of vessels for their owners or agents The master of a vessel when carrying out the requirements at the custom-house may be accompanied by a custom-house broker, and the customs documents required of steamship companies in entering or clearing vessels in the foreign trade are frequently made out for the company by a custom-house broker with whom it has a standing arrangement Instead of having their own customs clerks, the traffic department of a line may largely depend upon a broker to handle its entry and clearance papers,

Should there be dissatisfaction with the appraisement decisions of the customs officers, appeals may be made to the United States Customs Court, and further appeal on questions of law may be made to the Court of Customs and Patent Appeals Cases involving the rate or amount of duty, or the application of the administrative provisions of the customs laws may also be appealed to this United States Customs Court and may be further appealed to the United States Court of Customs and Patent

Appeals, and in rare cases to the United States Supreme Court. These appeals from the customs officers are so technical that specialized lawyers known as "customs attorneys" may be engaged by dissatisfied importers.

SHIPPING DOCUMENTS REQUIRED BY FOREIGN GOVERNMENTS IN UNITED STATES EXPORT TRADE

Besides the documents required by the carriers in their dealings with shippers or in the conduct of their freight transportation services, and the papers required by the United States Government, the requirements of foreign governments with respect to shipping documents used in the American export trade are an important consideration to ocean carriers and exporters.

Ocean bills of lading¹ are commonly required by foreign governments in the entry of imported cargoes and are in many instances subjected to specific requirements, which are binding upon American exporters. Some foreign countries require that bills of lading must be certified or legalized by consular agents, and some require the consular agent to retain a specific number of copies. Some do not require certification, but require that gross and net weights be shown, that weights be shown in kilos as well as pounds, that cubic measurements be shown, that the metric system be used in the preparation of bills of lading, that cargo values be specified, that the country of origin be indicated, that the marks of consignees be definitely included or that other specific requirements be adhered to in preparing the bill of lading. The requirements of some foreign countries itemize the contents of ocean bills of lading in detail.² Several countries either prohibit the use of "order" bills of lading or prescribe special restrictions as to the use of order bills.

CONSULAR INVOICES

In the same way that foreign shippers exporting cargoes to the United States are required to prepare consular invoices, so the governments of many foreign countries require American exporters to prepare foreign consular invoices.³ Foreign regula-

¹ See Chap. xvi.

² See *Exporter Encyclopedia* (annual), and information published currently by U. S. Bureau of Foreign and Domestic Commerce.

³ Consult authorities in footnote 2 above.

Via FACTURA CONSULAR BRASILEIRA (BRAZILIAN CONSULAR INVOICE)

Nº _____

Consulado Geral em Nova York DECLARAÇÃO (DECLARATION)

Declaramos solemnemente que somos exportadores ou carregadores
We solemnly declare that we are the exporters or shippers
das mercadorias mencionadas nesta factura contidas nos _____ volumes
of the merchandise specified in this invoice contained in the _____
indicações, a qual é anexa a verdadeira e toda as effects,
indicates, which is attached to all respects and
sendo estas mercadorias destinadas ao porto de
this merchandise being destined to the port of
do Brasil e consignadas aos Srs
Brazil and consigned to Messrs.
de
of

Nova York de _____ de 19__

Por

Agente do Exportador
Agent of Exporter

Nome e nacionalidade do navio e pela
Name and nationality of sailing vessel

--

Nome e nacionalidade do navio a vapor
Name and nationality of steamer

--

Data aproximada da saída do vapor ou do navio a vela
Approximate sailing date of steamer or vessel.

Porto de embarque da mercadoria
Port of shipment of the merchandise

--

Porto de destino da mercadoria
Port of destination of the merchandise

--

Porto de destino da mercadoria
Port of destination of the merchandise

sem opção para
with option for

--

Porto de destino da mercadoria
Port of destination of the merchandise

em trânsito para
in transit for

--

Valor total da factura inclusive frete e despesas aproximadas \$
Total value of the invoice inclusive of approximate freight and charges in U. S. Currency

--

Frete e despesas aproximadas \$
Approximate freight and shipping charges in U. S. Currency

--

Designação da moeda do país de procedência DOLLAR OURO £ - \$
Currency of the country from whence the goods are imported GOLD DOLLAR

--

OBSERVAÇÕES DO CONSUL

Pagou \$

VISTO Consulado Geral dos E. U do Brasil

Nova York de _____ de 19__

CONSUL GERAL

U.S. Currency

[illegible]

**Plus tôt la Démocratie du Travail est Comprise,
Plus vite les Intérêts de la Démocratie Industrielle**

Don & Co. St. Louis Mo. N. Y. 1891

tions governing consular invoices are by no means uniform. In some instances they apply to all cargoes and in others only to certain commodities or only to indirect shipments and they vary as to language requirements, number of copies, form and contents. The Brazilian consular invoice reproduced in Form 25 contains the name and nationality of the vessel, names of the ports of export and destination, total value of all the merchandise listed in the invoice inclusive of approximate freight and charges, a separate statement of approximate freight and charges, the exchange of the country whence exported, a description of the merchandise, its marks and numbers, quantity and description of packages, description of contents, gross and net weights in kilos, other unities of the Brazilian tariff, the value of each article in pounds sterling, the country of origin and the country where each article was purchased, observations and certification of the Brazilian consular offices, and a certification by the shipper that he is the exporter of the merchandise listed in the invoice, that the statements contained in the invoice are true and exact, and that the shipment is destined to a named Brazilian port and is consigned to a designated consignee.

In arranging the consular invoice as well as other consular documents required by some foreign countries, care needs to be taken to give the exact information called for. A distinction, for example, is sometimes made in foreign consular regulations between "gross," "net," and "legal" weight. Gross weight, when such distinction is made, is the entire weight of the package, the container as well as its contents. Net weight on the contrary may be either the weight of the merchandise in its original package, without, however, including the weight of the outside shipping container, or it may be merely the weight of the merchandise without including either its original covering or the shipping case. Whenever the terms "net" or "legal weight" are used in consular invoices, it is necessary to ascertain their exact meaning.

CERTIFICATES OF ORIGIN

Various foreign countries require the exporter to prepare a "certificate of origin." Some countries require this consular document either for all exports shipped to it, or for only certain

FORM 26 URUGUAYAN CERTIFICATE OF ORIGIN

commodities, or only in case of indirect shipments and several countries authorize certificates of origin if desired by the shipper but do not fix definite requirements. Most countries requiring a consular invoice do not also require a certificate of origin because the former usually indicates the origin of the merchandise, but various countries include both documents in their consular regulations. In some countries a combined consular invoice and certificate of origin is authorized. The certificate of origin required by the Government of Uruguay is reproduced in Form 26.

As in case of consular invoices, certificates of origin are not uniform as to form, contents, number of copies, etc. The Argentine certificate calls for a listing of the names of the vessel and captain, the vessel's flag, the number of the bill of lading, which is also certified by an Argentine consular officer, the shipping points, the marks, numbers, quantities and class of the packages, class of merchandise, quantity in weight or size, and the country of origin. Three copies need to be presented to the Argentine consular officer for his visé. The consul certifies that the shipper by means of this document has given proof that the merchandise contained in the packages referred to originated in the country mentioned in the column headed "country of origin of the merchandise." One copy is returned to the shipper while the other copies are returned to the ocean carrier by the consulate.

The Argentine certificate of origin is prepared in Spanish, for it is the official form provided by Argentine consular officers. Many exporters, however, make out the certificate on forms in which the declaration and description of shipment are in English and only the consular certification at the bottom is printed in Spanish.

Certificates of origin have a direct bearing upon the import duties collected in countries where merchandise produced in the United States is entitled to reduced or preferential rates as compared with foreign merchandise subject to the maximum tariff rates. Several of the countries requiring this document have double tariff schedules, under which the lower schedule applies to all or to certain specified articles of United States origin. In other countries the certificate of origin is required for statistical purposes.

Where the origin of merchandise is not officially shown in a consular invoice or certificate of origin and a country desires knowledge of its origin, it may require that the name of the country of origin be stamped on manufactured wares, or that the words "made in United States of America" or similar indication of origin be shown in each shipping package

COMMERCIAL INVOICES

A commercial invoice is regularly prepared by American exporters as a private document to be attached to international bills of exchange or drafts together with the bill of lading and a marine insurance policy or certificate. These papers are used in securing payment from the foreign purchaser. The invoice also assists the purchaser in clearing his goods through the foreign customs-house, and the invoice, although a private document, is in many countries subject to consular regulations. Some foreign governments require that commercial invoices be certified by their consular agents, some prescribe a special form, some specify detailed requirements as to the contents of the commercial invoices. The requirements in some instances are so comprehensive that the commercial invoice virtually becomes a consular invoice. Other governments enforce only certain requirements, such as the use of the metric system, of a prescribed language, or of ink signatures, the declaration of values and of freight and other charges, or the inclusion of net and gross weights.

NON-DUMPING OR VALUE CERTIFICATES

The commercial invoices covering exports to several of the British colonies are virtually non-dumping or value certificates as well as invoices. The consular regulations of Australia require a statement of the current domestic value of the exported products at date of shipment computed in accordance with the detailed instructions contained in the regulations, and the exporter is required to state the actual selling price to the purchaser and to enumerate a list of expenses and charges. He is required to state that no different invoice will be furnished to any one, and that there are no arrangements as to discounts, rebates, salary or compensation other than such as are shown in the invoice.

Similar, although not identical, requirements apply to commercial invoices covering exports to New Zealand and Union of South Africa, Newfoundland and Canada

The Canadian Government has approved two forms of invoice, each with a non-dumping certificate. The Canadian invoice for merchandise sold by the exporter prior to shipment shows the actual selling price to the Canadian purchaser and also the fair market value as sold for home consumption in the principal markets of the United States, and the invoice for merchandise shipped on consignment shows only the fair market value as sold for home consumption. The exporter states in the former that the price reported is correct and true and that the fair market value

(a) is not lower than the selling price of such goods when sold to jobbers or wholesalers generally at the said time and place, (b) that in case of new or unused goods it is not lower than the actual cost of production of similar goods at the same time and place, plus a reasonable advance for selling cost and profit, (c) that it is without any discount or deduction not shown and allowed on invoices covering sales for home consumption in the country of export in the usual and ordinary course of trade, and (d) that it is without any deduction on account of any drawback or bounty or on account of any royalty actually payable thereon, or payable thereon when sold for home consumption, but not payable when exported, or on account of the exportation thereof, or for any special consideration whatever

The certificate of value required in the invoice covering consigned merchandise is similar

The primary purpose of these certificates of value is to facilitate the enforcement of the so-called "non-dumping clauses" contained in the tariff laws of those British colonies that desire to prevent the flooding of their markets with surplus foreign products at prices so low as to be detrimental to home industries. Imports into Canada invoiced at prices below their fair market value when sold for consumption in the exporting country are liable to a special "dumping" import duty. The statement in the invoice with reference to origin also facilitates the proper application of the preferential tariff rates provided for in the customs laws of Canada.

INSPECTION CERTIFICATES AND SPECIAL TRADE DOCUMENTS

Several foreign countries require that a detailed *packing list* be presented with the commercial invoice, and some, while not requiring it, indicate that it is desirable to prepare a packing list.

The requirement in the customs regulations of the United States with respect to export inspection certificates issued by the Bureau of Animal Industries, Department of Agriculture, in case of exported live animals and meat products, which were referred to previously, are in line with the consular regulations of a number of foreign countries which require the presentation of such certificates when live stock and meat products are imported. Certificates of health issued by the Department of Agriculture or other authorities designated in the consular regulations, certifying that seeds, grasses, plants, trees, etc., are free from plant diseases, are similarly required by various foreign governments.

Miscellaneous special certificates, shipping labels, etc., are required in the consular regulations of some foreign countries. When making overland shipments to Mexico, *consular manifests* are prepared at the border by customs brokers or forwarding agents. No shipments may be made to the Union of Soviet Russia without obtaining an *import permit*.

Although many foreign countries require no special consular documents, sufficient has been stated to indicate that others enforce regulations equally or even more detailed than those applicable to foreign products imported into the United States. When shipping to a foreign market, it is invariably necessary to examine its consular regulations, for their requirements as to shipping documents are not uniform.

Foreign countries which enforce foreign exchange restrictions on import quotas variously require import permits. Permit requirements of this kind are not discussed fully in this volume because they are primarily parts of the emergency arrangements obtaining between the governments of many foreign countries and the importing firms of these countries.

CHAPTER XX

OCEAN FREIGHT FORWARDING DOCUMENTS

IN conducting the ocean freight forwarding business the usual shipping documents described in Chapters XVII to XIX are required, but in addition the freight-forwarding concerns, in their relations with the shippers for whom they forward cargoes, with the steamship lines, and with their foreign agents, require a number of special documents

A forwarder, having been engaged by an exporter, first engages the necessary ocean freight to the foreign port of discharge. He may prepare a *freight contract* similar to the ocean steamship freight contract referred to in Chapter XVII. It states that freight has been engaged for the account of the shipper via a named steamship company and steamer for a specified quantity and description of cargo. It also specifies the current brokerage charge which is paid by the steamship company, for at this point the forwarding firm acts as an ocean freight broker. The freight contract may be made out in triplicate, one copy going to the shipper or party for whom the freight is engaged, and two to the steamship company, which retains one of these copies and, after signing the other, returns it to the freight forwarder.

SHIPPING INSTRUCTIONS

The shipper next gives his *shipping instructions* to the ocean freight forwarder in accordance with a prescribed form provided for this purpose by the forwarder. These instructions direct the forwarder to make out the bill of lading in the name of the shipper and to consign the shipment on the bill of lading direct to the named foreign consignee or to the order of the shipper or a named party other than the consignee. If the shipment is to be billed "to order," the instructions may also state the name of the party to be notified of the shipment. The value of the shipment is stated so that the forwarder will be able to prepare the export

345 HARRIS STREET
NEW YORK
UNION TRUST BUILDING
EXTENSION, 2.

Slipcase No.

[illegible]

Data

We are sending you by { Express / Parcel } the following goods destined to:

[illegible]

As per enclosed B/L of the _____ { ~~Freight~~
~~Forward~~ } Co. Car No. _____, which please forward
to destination with the following instructions:

Make Bill of Lading in name of ... as shippers

Consign to or to the order of

Consignee a full address or party to be notified.

Original Bill of Lading to Consignee Original Bill of Lading to us

Mail *****

Copies of Bills of Lading to Consignees ***** **Copies of Bills of Lading to us**

Value (Necessary for Customs Clearance) \$ _____ Canadian tax to be shown on _____

Insure against	maritime risk for \$	Pilferage for \$	Charge Premium to
----------------	----------------------	------------------	-------------------

Enlighten to Godhead to Enslaved to

Freight to Subtotal up to be changed to _____
Certificates and Storms (H&W) to be changed to _____

Carriage and Storage (if any) to be charged to
 Gross Freight to be charged to

Regular Evening Classes to be charged to

Regular Forwarding Charges are charged to _____

Ship by Air. ☐ Every other Thursday. ☐ Monthly. ☐ See to. ☐ Special conditions. ☐ See to. ☐ None.

I, , a resident, hereby certify that the above statement is a complete, fair and true account of the merchandise and

[illegible]

SPECIAL INSTRUCTIONS

[illegible]

FOR EXPORT

You're only

FORM 27 SHIPPING INSTRUCTIONS

declaration required by the United States Government The amount of marine insurance desired is stated and the forwarder is instructed to charge the premium to the shipper or other named party

The forwarder is also informed that the freight charges to the port of export, if not prepaid by the shipper, the freight charges

to the foreign port of discharge or final destination, the transfer charges at the port of export, the forwarder's own charges, and any consular or custom-house fees that may arise are to be charged as specified in the instructions. Instructions are similarly given as to amounts, if any, to be collected C O D, and, as to the number of copies of the bill of lading that should be prepared and the parties to whom they are to be mailed. Copy of a typical form of ocean forwarder's shipping instructions is reproduced herewith, Form 27. When the shipment is made from the interior point of shipment, the exporter usually encloses the railroad bill of lading with these instructions, to enable the ocean freight forwarder to take possession of the shipment when it arrives at the port of export.

ARRIVAL NOTICE, SHIPPING PERMIT AND CUSTOMS DECLARATION

The forwarder upon receipt of the shipping instructions proceeds to prepare the necessary *exporter's declaration* to satisfy the requirements of the United States Customs. The various copies of this customs document are handled as was described in Chapter XIX, for the customs regulations apply whether the shipper makes his shipment direct or through an ocean freight forwarder. The forwarder now also obtains a *shipping permit* from the steamship company, at ports where this document is required, on presentation of evidence that freight has been engaged. Where a shipping permit is not required, he makes whatever arrangements are incident to the delivery of outbound cargo to the ocean carrier.

When the shipment arrives at the seaboard the forwarder receives the usual *notice of arrival* from the railroad, after which upon presentation of the railroad bill of lading the forwarder obtains possession of the shipment.

LIGHTERAGE OR TRUCKING INSTRUCTIONS

Export cargoes arriving at the port of export are to be transferred to the steamship pier or wharf, and this may involve either lighterage or trucking services. At New York, where it is necessary to lighter a large amount of cargo, carload freight, with several exceptions, is entitled to free lighterage to points within the free lighterage zone, while less-than-carload freight

is customarily subject to cartage. When export freight is to be lightered, the forwarder instructs the railroad company in a document known as the *forwarder's lighterage instructions*. This form lists the cargo by mark, number, description and weight and requests its delivery at a named steamer and pier or wharf on or before a specified date. It also shows the railroad car number, the location of the car, the date of its arrival, the forwarder's waybill number, and a request that the ocean carrier's *dock receipt* be sent to the forwarder immediately after delivery.

Several copies of these lighterage instructions may be prepared. Besides the copy going to the railroad company for execution, a copy may be attached to the correspondence and papers of the forwarder covering the shipment, and a third copy may be given to the forwarder's transportation department which is to follow up the shipment to assure that delivery will be made in permit time.

Shipments subject to cartage are similarly governed by *trucking instructions* which are issued by the forwarder to a truckman on a form especially prepared for this purpose. The form of this document is similar to that of the lighterage instruction blank, but differs in that it contains a space in which the truckman inserts the cartage charge and the date of delivery. Two copies are usually given to the truckman who retains one copy and returns the other with a statement of charges after delivery has been made. A third copy is customarily attached to the forwarder's correspondence and papers covering the shipment.

BILLS OF LADING

When delivery has been effected to the outgoing steamer either by lighter or by truck, the railroad company or the truckman, as the case may be, obtains from the receiving clerk of the steamer a *dock receipt* such as was reproduced in Chapter XVII. The forwarder is then in a position to prepare the *ocean bills of lading*, which are returned to the steamship company for signature. In case of a large shipment which does not need to be combined with others by the forwarder in order to overcome the effect of the minimum bills of lading issued by some steamship lines, and which is destined to a port reached by the line, the ocean bill of lading obtained from the steamship company may be sent to the

shipper In some instances, however, the forwarder issues his own *forwarder's bill of lading* to the shipper

An ocean forwarder's bill of lading (Form 28), as is true of ocean bills of lading issued by steamship companies, may be issued either direct to the consignee or to "order" The shipper's instructions will determine this and also the number of copies to be issued and the party to be notified at destination in case an order bill is requested The instructions will also state the name of the forwarder's foreign agent to whom application should be made for delivery An examination of the conditions stated in forwarder's bills of lading shows that the property covered by them is "subject to all conditions as to limitations of liability for loss or damages. appearing on bills of lading, receipts or tariffs issued by such carriers, truckmen, lightermen, forwarders, agents, warehousemen and others," and that "the company assumes no liability as a carrier and undertakes only to use reasonable care in the selection of carriers, truckmen, etc, to whom it may entrust the goods for transportation and/or delivery and/or storage or otherwise" Some, although not all banks, however, accept the bills of lading issued by reputable freight forwarders when attached to drafts Should loss or damage occur for which the ocean carrier is legally responsible, the ocean bills of lading issued by the ocean carrier to the forwarder become available

FORWARDER'S WAYBILLS

The ocean freight forwarder, having attended to the forwarding of the shipment through the port of export, now prepares his waybill or freight list which contains instructions to the forwarder's foreign agent, and which also serves as the basis of his accounts, in so far as charges have not been prepaid by the shipper or charged to him

The forwarder's waybill (Form 29) besides containing instructions as to the collection of charges, also states the name of the steamer and her sailing date, the marks, numbers, description, value, weight and measurement of the cargo, to whom it is billed, and the name of the shipper It will specify the charges incident to each shipment and indicate the amount that is to be collected from the consignee

OCEAN FREIGHT FORWARDING DOCUMENTS 353

<small>Form No. 300 Rev. 11-35</small>				
PLEASE REFER TO THIS INVOICE BY SHIPMENT NUMBER				
PHILADELPHIA _____ 10				
M _____				
TO JOHN H FAUNCE, DR <small>MEMBER ASSOCIATION</small> FREIGHT CONTRACTORS AND FORWARDERS CUSTOMS BROKERS				
<small>POTTERSON</small>		<small>NEW YORK</small>		
<small>Union Trust Bldg.</small>		<small>1 BY 15 STREET</small>		
<small>STEAMER</small>	<small>SAILING</small>	<small>CONSIGNEE</small>		
NAMES	Inland Freight Cartage Insurance Forwarding Fee Customs Clearance Consular Fee and Invoice Preparation of Census and Returns, Bills of Lading, etc. Ocean Freight Packages			

FORM 30 FORWARDER'S EXPENSE BILL

These waybills or freight lists have not been standardized in form, number, or copies or methods of handling. Some forms of forwarder's waybills provide a space in which the foreign agent is requested to specify his charges and then to return it to the forwarder.

FORWARDER'S EXPENSE BILL

The transaction between the forwarder and shipper is closed on the basis of the forwarder's expense bill (Form 30). It states the total amount that the shipper is called upon to remit to the forwarder. This amount is itemized and will vary with the specific expenses incurred by the forwarder and the charges collected for his services.

If inland freight is not prepaid by the shipper and instead is paid by the forwarder, it will be listed in the expense bill to the shipper or in the forwarder's waybill for collection from the

consignee, according to instructions received from the shipper. There are also definite spaces for port transfer charges, ocean or through freight charges, insurance premiums, marking, inspection, storage, consular fees, and other specific costs chargeable to shipper's account if the instructions so state. As the charges of forwarders for services rendered vary, their expense bills to shippers necessarily vary in form. They variously state charges for "issuing bills of lading," "issuing customs clearance," "issuing consular invoice," "commission," "forwarding charge and services," "forwarding bill," etc. The charges made by forwarders were discussed in Chapter XIII.

The forwarder's expense bill serves as an itemized bill to the shipper and as the basis for settlement with him. It also serves as a basis for the forwarder's accounts in so far as charges and costs are charged to the shipper instead of the consignee. The waybill and expense bill together enable the forwarder's accounting staff to keep accounts of his freight forwarding transactions.

The documents utilized by ocean freight forwarders are not uniform, and forms in addition to those referred to in this chapter may be used. There may, for example, be a special form in which the forwarder informs the shipper that he is enclosing his bill of charges or expense bill, and various documents including the original bills of lading, insurance certificate, consular invoice, certificate of origin, commercial invoice, packing list, draft or bill of exchange, and a letter of instructions. There may be a special form in which the forwarder requests the steamship company to acknowledge receipt of a shipment in good order on board a steamer. A special form may be used to list the enclosures covering a shipment and to request the foreign representatives of the forwarder to make delivery of a shipment as instructed.

PART IV

RELATION OF CARRIERS WITH ONE
ANOTHER AND THE PUBLIC

CHAPTER XXI

MONOPOLY AND COMPETITION IN THE OCEAN TRANSPORTATION SERVICE

A BUSINESS or a service may be competitive or monopolistic, or it may be in part monopolistic and in part subject to competition. A monopoly may be complete or partial. Complete monopoly is the absence of all competition as regards the fixing of prices. The essence of monopoly is the power to decide what price the purchaser shall pay, and the degree of monopoly possessed by a producer or a carrier is determined by the measure of his ability to fix the charge.

If purchasers can compel those who have commodities or services to sell to accept the lowest price which they will take rather than not make a sale, the business or service is one in which there is free competition, if the producer or carrier can compel the buyer to pay all he will give rather than forego having the article or service he desires, there is complete monopoly. If neither of the parties to the transaction, the producer and the consumer, the carrier and the shipper, can compel the other to accept the least favorable terms, there is neither free competition nor complete monopoly. If the carrier cannot compel the shipper or traveler to pay all he would be willing to pay rather than go without the service, or, stated otherwise, if the buyer of the service can compel the carrier to charge less than the maximum value of the service to the buyer, the rate or fare is partly competitive and partly monopolistic. The carrier possesses a partial monopoly.

While the power to establish the charge is the essence of monopoly, it is also clear that the charge or price cannot be wholly dissociated from the transportation services of the carriers and their efforts to increase traffic otherwise than by rate cutting. A group of carriers may agree upon their rates, and yet they may compete in the services which they render and make

vigorous efforts to increase their respective shares of the total available traffic by advertising, solicitation, or by improving their services

OCEAN AND RAIL COMPETITION CONTRASTED

The magnitude of some of the present-day lines and their tendency to consolidate, the rise of the companies with large fleets of tramp vessels, and the almost universal tendency of ocean lines in recent years to organize conferences, pools or agreements are incontrovertible evidence that the ocean transportation business is less competitive than in the past. (There are various reasons, however, why even now it continues to be more competitive than the railway business.)

1 The ocean is a highway free to all persons. Not only may every vessel sail the sea without purchasing a right-of-way, it may also enter the ports of every country to load and unload cargo. A small charge may be made for the privilege of entering the port and using its facilities, but the rate of charges is the same for everybody. Even at ports where the commercial facilities have been provided by the capital of a private company, the right of shippers and carriers generally to use those facilities is frequently maintained by public regulation.

2 A ship may start from any port and reach any other port, in any sea, not closed by law or physical conditions. The ocean vessel has a far greater range of movement than has the railroad car. The entire sea, all its routes and their termini, are available for the ship. There is less chance "to divide the field" of traffic operations at sea, and restrict the business of certain ocean routes and termini to a single carrier or combination of carriers. Even though the lines may combine, the competition of the independent vessel may and does, like the tides, reach every shore.

3 It is easier to engage in ocean transportation than in the railway business. The minimum amount of capital required to enter upon the former is relatively small. There are small ships as well as large ones that may ordinarily be purchased or hired by any one desiring to become a public carrier, or by a manufacturer or trader who may desire to make but a single shipment. Except in unusual times or in restricted fields, a vessel

may usually be chartered as readily as a house may be rented. In each large port there are ship brokers that are in cable connection with other large ports, and that are thus informed regarding ships in all parts of the world. The exporter of locomotives or bridges from Philadelphia, of wheat from Chicago, or of cotton from New Orleans, may either engage some existing carrier to handle the traffic, or, if the rates charged seem unreasonable, he may charter a vessel either for a single trip, or for such time as he may wish, and thus transport his own goods. The investment needed to own cargo vessels is relatively small in comparison with the funds required for a large ocean line or for a railroad. The ocean steamship companies owning and operating the larger number of vessels have paid-up capital and indebtedness less than does a medium sized American railroad company. However, growth and consolidation are steadily enlarging ocean transportation companies.

It is more difficult to enter the business of ocean-line transportation than to operate independent vessels, because the amount of capital required is greater and deferred rebates and other practices of existing lines, as will be described in the following chapter, sometimes make it difficult for newly organized lines to obtain traffic or to withstand organized opposition. Ocean lines, however, differ sharply from railroads in that they do not require the vast capital investment of the latter.

4 One may retire from the field of ocean transportation with relative ease. Although property in a ship is "fixed capital," in that the ship can be used only for the one service of transportation, the ownership of this fixed capital may readily change hands. Representing a relatively small amount of capital, as compared with a railroad, a buyer may under ordinary conditions readily be found. At least there will be little difficulty in finding a person who will charter a freight vessel. Ocean vessels, whether line or tramp, are not tied down to a fixed right-of-way as railroads are. If they prove unprofitable on one route, they may be shifted to another or sold to a concern which will operate them elsewhere. Some financial loss may be incurred, but the sale can be made more easily than in the railroad business.

5. Ocean carriers, even the lines which are parties to conference agreements or pools, are subject to commercial com-

petition The rates from the United States must be made with reference to those from rival commercial countries, and the relative rates from different ports in the same country are greatly influenced by the rivalry of the ports The commercial or industrial competition affecting railroad rates is mainly domestic, that influencing ocean rates is international in scope Only a part of the railroad's traffic enters into the foreign trade, while all or nearly all of the freight traffic of ocean carriers is international, and is subject to the competition between nations, which becomes more intense as each country strives eagerly for a larger share of the foreign trade of the world The time may come when this international trade rivalry will also exert a wider influence upon American railroad rates than at present

These five points indicate the main differences between the railway and ocean transportation services The railroad company operates over a well-defined territory from which other rail carriers are largely excluded The roadway, terminal facilities, and equipment represent a large investment of fixed capital, which cannot readily be sold or leased The owners of vessels, on the contrary, are not restricted to any territory, and it is only occasionally that they have prevented other owners from entering the field selected for their operations The only fixed capital the ocean carrier ordinarily need have is in his floating equipment, nature provides the roadway, and the public usually dredges the harbor channels and basins

Property in vessels can ordinarily be sold or leased readily A freight vessel is more easily sold or chartered than a passenger steamer, but even for the latter there can usually be found some individual or company who will buy or lease, although the owner may be obliged to sell at a sacrifice, or may be compelled to refit the ship for the freight service before he can dispose of the property

The large ocean carrier who is operating one or several lines, comprising numerous vessels, may find it advantageous to construct terminal facilities, but, in many cases, the central or local government, some public "trust," or some dock company, railroad, or industrial concern, constructs and manages the docks and wharves, and leases to the large lines such facilities as they may require Even the largest steamship companies have secured

exclusive possession of neither the terminals nor the routes of any portion of the ocean transportation field, although for certain routes, and for the passenger service and the mail and express business, the traffic position of certain powerful lines is now so strong that outside competition has become difficult for the line business they handle. Interline competition has in recent years been restricted through conference arrangements of many kinds. Yet the competition between tramps and between tramp vessels and lines persists, and the commercial competition between rival countries and ports is ever present.

COMPETITION IN LINE AND TRAMP SERVICES CONTRASTED

The difference between line traffic and charter traffic needs to be kept clearly in mind in analyzing the nature of competition in the ocean transportation service. In charter traffic competition is full and free, except in certain restricted regions of minor importance in ocean transportation. There is little likelihood that the service of transporting upon the ocean the great staple articles of international and coastwise commerce will be monopolized. As long as the ports of the world are open on equal terms to all shippers and carriers, as long as men may buy or charter vessels and sail them at will upon the high seas, the rates charged for the ocean transportation of the great staples of industry and trade, and hence for the larger share of the tonnage of ocean freight, will be competitive.

The partial restriction of line competition has been possible because the establishment of a line of large fast steamers, each of 20,000 to 50,000 tons or more gross register, capable of maintaining a speed of from 15 to 28 knots, having weekly or more frequent sailings from each side of the Atlantic or Pacific is a most costly venture. To fulfil the requirements that must be met in the present-day passenger and mail services means the investment of several millions of dollars, and the organization of a business that only a large corporation can undertake. The number of ocean lines is consequently limited, and if the small number of rivals can come to an agreement as to rates, division of traffic, or pooling of earnings, competition can be regulated and some measure of monopoly can be established. Each line has a very considerable investment at stake, and while its ships can

be transferred to some other ocean route and to some other service, the vessels, having been constructed and equipped with special reference to the particular service they are performing, cannot, in normal times, be sold or transferred to other routes without large financial loss

The ungoverned struggles of the giant lines for traffic are apt to be financially destructive for both or all combatants. Like the former wars of powerful railroad companies, the competition of great steamship companies, if unrestricted, becomes so severe as to cease to be a healthy stimulus to business, artificial and unstable conditions of trade are created, and at the close of the struggle the carriers find themselves financially weak, and less able than they were at the beginning of their traffic war to improve their service and to keep their equipment and facilities abreast of business needs

As with rival railroads so with competing steamship lines, cooperation for the regulation of competition is necessary. This is shown clearly by the history of the interrelations of steamship companies, by the rate and traffic agreements and pooling arrangements they have made, by the merging of small companies into larger ones, and by the consolidation of several large companies into a yet more powerful corporation. Before taking up the question of rates, it will be well to study the ocean line conferences, pools and agreements which have been organized in nearly all parts of the maritime world

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CHAPTER XXII

STEAMSHIP CONFERENCES AND AGREEMENTS

THE scope and intensity of competition among ocean carriers, and the necessity of regulating and restricting that competition, especially among vessel lines operating over common routes, have been explained in the preceding chapter. It is but natural that those owning and operating rival steamship lines should confer with each other and seek by organization to prevent their inter-line struggles from becoming destructive warfare. Knowing from experience that unlimited competition, except in those relatively short periods when traffic is more abundant than transportation facilities, tends to eliminate business profits, rival steamship companies seek by agreements as to the number of vessels each will operate, as to frequency of sailings from the ports they serve, and as to the minimum or actual rates they will charge so to regulate their relations with each other as to be able to carry on their business successfully and profitably. These agreements are "in restraint of trade" in the legal sense, but, as they are recognized as being necessary for the ocean carriers and beneficial to the shipping and traveling public, they are not prohibited by the antitrust or antimonopoly laws of the United States and other countries. They are permitted by law, and in the United States are subject to government regulation.

Like many other institutions, the organizations by which competing ocean carriers regulate their interrelations have developed from small beginnings. They are called "conferences," instead of traffic associations, as they might more appropriately be designated, partly because of the informal manner in which they started and were, for some time, carried on. It is probable that those who developed these organizations retained the title "conferences," because they wished to avoid the semblance of creating combinations in restraint of trade, and thus illegal, as the conference agreements undoubtedly were in the United States after

the enactment of the Antitrust Act of 1890 and until, by the Shipping Act of 1916, they were made legal when approved by the United States Shipping Board

The question as to the legality and propriety of these organizations of ocean steamship lines was raised in England and was made the subject of an investigation by a Royal Commission on Shipping Rings that reported to Parliament in 1909. This illuminating report showed that ocean line conferences and agreements were at that time almost universal in the shipping engaged in the international trade of all countries. The commission's conclusion was that the conferences served a useful purpose, that they were essential and should not be prohibited. In the following year, however, the Department of Justice of the United States Government felt obliged to start proceedings in the Federal courts against the steamship conference in American trade as a violation of the Sherman Antitrust Act of July 2, 1890. Certain agreements entered into by members of the conferences, especially the granting of rebates on freight rates to shippers who agreed to ship only on vessels of the conference lines, were alleged to be illegal, and it did not seem consistent for the Department of Justice to enforce the Sherman Act to prohibit agreements by railroads as to competitive rates and to ignore similar action by ocean carriers. However, not long after this suit was started and before it came to trial, the House of Representatives, by resolutions of February 24 and June 18, 1912, provided for a thorough investigation of "Steamship Agreements and Affiliations in the American Foreign and Domestic Trade," and the suit was not pressed. The report of the House of Representatives' Committee recommended legislation which finally became the Shipping Act of September 7, 1916, one provision of which legalized ocean conference agreements in American trade when approved by the United States Shipping Board.

THE DEVELOPMENT AND PREVALENCE OF OCEAN LINE CONFERENCES

As had been explained, there is no field of human endeavor in which competition is more general than in the business of owning and operating vessels in the charter or "tramp" services. The supply of vessels available for charter is practically the world

supply, and rates are determined by the relation of traffic demand and the tonnage of vessels seeking employment. This explains why the occasional agreements or conferences that have been arranged among the owners of tramp vessels have been limited in scope and have had no great effect upon charter rates. In 1904, the Sailing Ship Owners' International Union was organized for the object of fixing minimum rates of freight for the principal voyages in which sailing vessels were engaged in bringing freight to European ports from countries outside of Europe. The scope and effect of this conference, however, were limited. It applied only to certain long voyages, such as those from the west coast of South and North America and the return voyages, only sailing vessels were included in the agreement, and these had to be relatively large vessels of an agreed minimum tonnage. The rates agreed upon, moreover, were merely a minimum, which was fixed close to the line of no profit. The purpose was to prevent ruinous competition.

Various steamship owners' associations, particularly in Great Britain, have at times endeavored to control charter rates between certain of the larger ports, but have never had a widespread effect upon such charges. They are concerned mainly with obtaining favorable harbor regulations and shipping legislation, and with Government protection against the shipping policies of foreign countries, improved charter parties, reduced coal-trimming charges, favorable tolls, protection against organized labor, or with economical marine insurance.

It is in the ocean-line business that cooperation has displaced unrestricted competition. Conferences, agreements, and pools have become general in the ocean-line traffic because their organization and maintenance are less difficult than in charter traffic, and because, as has been stated, the competition between ocean lines, if unrestricted, becomes so intense and persistent that the competing lines find it necessary to enter into agreements regulating their interrelations. The report made in 1914 by the House Committee on Merchant Marine and Fisheries (which was prepared by Professor S. S. Huebner) on "Steamship Agreements and Affiliations in the American Foreign and Domestic Trade,"¹

¹ Investigation of Shipping Combination Under House Resolution, Vol. IV, p. 281.

contains a description of 80 agreements and conference arrangements, and the report states that:

As regards nearly every foreign trade route practically all the established lines operating to and from American ports work in harmonious cooperation, either through written or oral agreements, conference arrangements, or gentlemen's understandings. The few instances where two or more lines serve the same route and have denied the existence of written or oral agreements for the regulation of trade are exceptions and not the rule.

Shortly after this report was published, the European or World War started, and that temporarily terminated many ocean conferences. For a short time after the World War, there was a large demand for ships and there was no immediate and urgent need for reconstituting the ocean line conferences. In 1921, however, there was a sharp and general reduction in the volume of ocean freight, and a corresponding revival of active interline competition. The surplus ocean shipping and the rivalry of the competing lines made the reestablishment of the conferences difficult, but at the same time emphasized the necessity of restoring ordered relations among ocean carriers. By 1924, as shown by a report² of the United States Department of Commerce, there were 28 active major ocean conferences and formal or informal arrangements in the commerce of the United States, and several of the major conferences were divided into sections or subconferences. In its annual report for 1933, the United States Shipping Board states that "annual reports for the past few years have commented on the steady increase in the number of agreements filed each year with request for board approval under Section 15 of the Shipping Act." Of the 750 agreements approved by the board during the 1934 fiscal year, 109 were conference agreements. The active conferences in the foreign and interstate commerce of the United States in 1933 were 101 in number, as against 86 on June 30, 1932.

DESCRIPTION OF STEAMSHIP CONFERENCES

The conferences through which competing ocean lines enter into agreements as to sailings, rates, divisions of traffic or other

² E. S. Gregg, *Rate Procedure of Steamship Conferences*, Trade Information Bulletin No. 221 (April, 1924).

matters are formally organized, but the term conference may also be applied to informal gatherings or intermittent, irregular meetings of representatives of the interested lines at which understandings may be reached as to sailings, rates or other matters of mutual interest. The informal conferences, however, may result in an understanding that the traffic officials of one line will consult those of another whenever any rate changes are contemplated, or that the weaker line will charge the rates established by a stronger line. Such informal conferences can function successfully only when mutual agreements are easily reached and carried out. When interline competition is severe, as it is quite certain to be when traffic falls off, and when there are a number of competing lines, there must be formal organization of the conference, there must be a definite tariff or schedule of rates and carefully framed rules as to what the members may and may not do, with severe penalties for violations of the rules. The conference agreement is a code the purpose of which is to maintain fair practices in a business where competitive relations are exceptionally unstable.

The most important provision of a conference agreement is the one regarding the rates the member lines shall charge. The agreement may fix absolute rates, or only minimum rates. There may also be an agreement as to differential rates allowed for differences in the services performed by different members of the conference. The rates agreed upon can usually be changed only by the consent of all members, but sometimes a change may be made by a three-fourths vote of the members. Certain heavy commodities may be excluded from such an agreement, or may be given special treatment by agreeing merely upon the minimum rates below which they may not be carried. Minimum rate agreements, not prescribing absolute rates for any classes of traffic, have been more numerous than fixed rate agreements, particularly in the freight and passenger business of the North Atlantic route. Differential rate agreements are at times entered into when the service of particular lines is indirect or slower than that of others serving the same ports. Under such conditions, the conference lines sometimes agree upon differential rates so as to enable all lines to obtain a fair share of available traffic, the differential lines being authorized to charge 5, 10, or

other agreed percentages less than the charges of the direct or standard lines

The conference agreements sometimes, though not frequently, contain provisions not only for the division of the services and sailings among the member lines, but also for the division or pooling of the competitive traffic or for the pooling of a percentage of the freight and passenger receipts. Traffic and money pools were not so numerous in the conference agreements after the World War as they had been before, but they are to be found in some of the latest agreements. The arrangement made by the North German Lloyd and the Hamburg-American during the latter part of 1933 is significant. These two strong lines have put their North Atlantic passenger and freight services under joint control, and thus have, in effect, pooled their services and the traffic. This was done because it was not profitable to operate the two lines in this service separately and on a competitive basis.

The nature of a formal steamship conference agreement dealing with a peculiarly difficult situation may be indicated by referring to some of the provisions of the agreement entered into in December, 1933, by 13 lines engaged in the intercoastal trade of the United States by way of the Panama Canal. The agreement, which was approved by the United States Shipping Board Bureau, December 28, 1933, became effective January 1, 1934, and was binding upon the signatories until April 30, 1934, and indefinitely thereafter, each party to the agreement having the right to withdraw from the conference upon giving 60 days' notice. The detailed and rigidly binding provisions of the contract required, among other things, that the several members should charge only the rates agreed upon and permit no rebates therefrom. There were very specific rules concerning the "equalization" of rates from interior points through Atlantic ports on westbound shipments, rules against absorbing cartage or lighterage at ports, and rules as to procedure to be followed in making and changing rates. The agreement provided for a pool into which 3 per cent of freight receipts was to be paid, certain cargo being excepted, the parties to the agreement were divided into "A" member lines and "B" member lines, and "out of the (pooled) money so received by the conference up to \$80,000 per

month, there was to be apportioned and paid to each 'B' member line a share" determined by the relative frequency of the sailings maintained by the several "B" member lines. If a member of the conference was found upon complaint and hearing to have violated any provisions of the agreement, the members of the conference by a three-fourths vote—the complainant and accused members not voting—were to fix the penalty, the maximum penalty thus fixed being four times the freight money involved.

The plan by which conference agreements are enforced is especially significant. It is not illegal for American steamship companies to enter into conference agreements, if such agreements do not include the provisions as to "fighting" ships and deferred rebates that are prohibited by the Shipping Act of 1916, and if the agreements are approved by the United States Shipping Board Bureau, but such agreements are not enforceable at law. They are extra-legal, and their validity or effectiveness depends upon the good faith of the member lines, and the procedure by which the conference acts upon complaints and imposes penalties for violation. The pooling of traffic or earnings is not easily arranged, because a steamship line naturally prefers to be unhampered in developing its traffic and desires to retain the earnings received therefrom, but when the pooling of earnings or traffic can be arranged, and is carefully administered it is especially effective. Pooling removes the main incentive for secretly undercutting rates that have been agreed upon.

The granting of deferred rebates by lines in the trade of the United States was very properly prohibited, but such rebates are the means often employed by lines in the trade of foreign countries to protect themselves against the competition of outside, or non-conference lines. As has been explained, shippers are promised a rebate of 5 or 10 per cent of their freight payments, 3, 6 or 12 months after a designated period, provided the shippers have meanwhile patronized only the conference lines. Likewise, the Shipping Act of 1916 did right in prohibiting the operation in American trade of "fighting" ships, which were of non-conference lines by undercutting rates and by duplicating sailings.

However, Section 15 of the Shipping Act of 1916, which re-

quires Shipping Board approval of conference agreements, has been held by the Board³ not to prevent conference lines from making contracts with shippers whereby in return for reduced rates and an agreed service the shippers agree to dispatch via the conference lines their entire shipments during stipulated periods. Such contracts to be legal must be open to all shippers under like conditions, and the spread between the regular non-contract and the contract rates must not be unreasonable. Such contracts when made by a single carrier, and when making a wide difference between contract and non-contract rates for the purpose of effecting a monopoly, would not be approved by the Shipping Board as legal.

BENEFITS RESULTING FROM OCEAN STEAMSHIP CONFERENCES

While the foregoing account shows that the conferences, agreements, and understandings of ocean lines perform a useful service, they have sometimes been complained of on the ground that their monopolistic power, even though not complete, is liable to abuse. They have at times prevented the establishment of new lines and crushed non-conference lines, or they may have exerted arbitrary power over rates, have dominated shippers, have been indifferent as to the landing of freight in proper condition and slow to settle claims. They have sometimes granted special rates and accommodations to large shippers, and refused to publish tariffs and classifications. Their secrecy, the questionable practice of lines in the trade of foreign countries of paying deferred rebates, and their occasional operation of fighting ships have especially been causes of complaint.

The evils complained of can be, however, and, as far as American trade is concerned have, apparently, been remedied by proper legislation. The objectionable features of ocean conferences and agreements having been prohibited by the Shipping Act, and the administration of conferences having been subjected to supervision by the United States Shipping Board, the advantages of ocean conferences and agreements both to the lines and to the shippers can be retained without the tolerance of abuses.

³ Docket 80, *The W T Rawleigh Co v N V Stoomvaart Mij "Nederland," et al*. Reported in 1 U S Shipping Board, 285. Briefly discussed in the 1933 Annual Report of the Shipping Board, pp 11 12.

Arbitrary rate discrimination by ocean conferences is the exception. For every such instance there are many in which the conferences, by controlling unrestricted competition, have made the rates more uniform to all shippers at a given port. For every arbitrary discrimination between countries, there are many instances in which conferences have maintained the rates from the United States to foreign markets on a parity with those from other countries. The arbitrary increase of rates by conferences is likewise exceptional, because they cannot ordinarily disregard the competitive forces mentioned in the preceding chapter. All such arbitrary actions can be further restricted by government supervision, and it should be remembered that there is no more prolific cause of discrimination than unrestricted competition among ocean carriers.

Ocean conferences benefit both the conference lines and the shippers by stabilizing rates. The merchant engaged in international trade desires an adequate service at rates that are reasonable and fairly stable, fluctuating rates that result from unrestricted competition seriously interfere with trade, whether it be domestic or international. Sudden and large changes often characteristic of ocean rates may interfere with the development of commerce as seriously as the unstable competitive rates by rail in the United States have in times past hampered the industrial development of different sections of the country.

The chief benefit of ocean conferences to shippers, however, is in the improved service which they make possible. Conferences reduce the cost of the line service, and while this increases the profits of the line, it also makes possible a lower level of rates and a higher standard of service. For every instance of indifference to the welfare of shippers, there are many in which ocean conferences have promoted regularity of service, better distribution of sailings, and ultimately the operation of more and better vessels than the lines would have felt justified in providing if interline rate competition were absolutely unrestricted. The instances in which conferences have prevented a new line from entering a trade or have put a non-conference line out of business should be balanced against the large number of weaker conference lines which would probably be crushed or would suffer severely if they engaged in uncontrolled competition with their

stronger fellow members. Against the scattering instances of conferences having discriminated unfairly against certain ports should be balanced their ability so to distribute their cost of service more economically as to increase the number of sailings at the smaller ports where competitive services would be unprofitable. On well-established trade routes where the flow of traffic is heavy in volume, it should, moreover, be borne in mind that most of the conferences have to do almost entirely with rates and earnings. Nowhere in the world has such progress in ship construction and service improvement been made as in the North Atlantic passenger business, and yet the great lines that compete so keenly as regards the kind of service rendered are parties to rate agreements and often to pooling arrangements.

These benefits to the shipper and the ocean traveler may, however, in individual instances, be largely nullified by the steamship conferences if they follow a policy of restricting the development of the service, and a policy of high rates and small volume of business instead of low rates and maximum traffic. Instances are not wanting of arbitrary action on the part of steamship organizations to prevent outside lines from interfering with the established traffic of the associated companies unless they became members of their conferences, and shippers have sometimes been penalized for patronizing lines not belonging to the combination. The tendency of those possessing exclusive privileges is to seek vigorously to retain such privileges against outside interference, accordingly, it is clear that conferences among ocean carriers, which seem to be rendered necessary by the severity of unrestricted competition, should be carefully supervised and regulated by government authority, as is required by the Shipping Act of 1916, and the Merchant Marine Act of 1920.

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CHAPTER XXIII

RELATIONS OF RAILROADS WITH INLAND WATERWAY AND OCEAN CARRIERS COMPETITION, CONSOLIDATION, COÖPERATION

THE relations of railroads and carriers by water are both competitive and complementary. Every carrier whether by rail or by water seeks to build up its traffic, not only by developing new business but by holding existing travel and tonnage against rivals, or by drawing away from them the traffic they have developed. There are few if any carriers that cannot add to their net earnings more than proportionately to the increase they may obtain in passengers and freight tonnage. The transportation business is thus subject to the economic law of "increasing returns" or "diminishing costs." Moreover, every railroad or carrier by water is manned by executives and traffic officials eager to show successful results in the conduct of their affairs. They seek to win in the rivalry of business, just as do all men of initiative and ambition. Transportation men, like other business men, are subject to the psychological law that satisfaction comes from successful effort in the rivalries of life. For these reasons, competition of carriers with each other must needs be subjected to "rules of the game" prescribed by government regulation, and must also be kept within limits prescribed by associated action of the carriers themselves.

COMPLEMENTARY RELATIONS OF RAILWAYS AND WATERWAYS

The competition of carriers has been so obvious and inevitable and has been so welcome to the public served, that the fact of the complementary relation of carriers by rail and by water has, until recently, been overlooked or has been given inadequate consideration. For most passenger and freight services between points that are connected by land ways, the railroad, and, of late, its serious rival and competitor the motor-served highway,

provide the best transportation facilities, but there is some passenger traffic, and there are some kinds of freight that can be moved by carriers by water as well as by carriers by rail or road. Some traffic, indeed, must move both by rail and by water, the shipments from an inland point in one country to a destination in another non-contiguous country being carried by connecting railroads and vessel lines which jointly form one through route. Similarly a joint service by railroad and coastwise carrier may be more economical than an all-rail movement. A large share of the busy traffic of the coastwise vessel lines operated between the north Atlantic and the south Atlantic and Gulf ports of the United States, between the Atlantic and Pacific ports, and between the Pacific seaboard cities is transported by railroad from inland points to the seaboard and from thence inland. The same is true of the large volume of traffic on the Great Lakes. The transoceanic, the coastwise, and the Great Lakes carriers, and the railroads (and to some extent the highways) perform complementary connecting services—they are each an essential part of a unified transportation system. The prosperity of each carrier may be to the advantage of the other. The coastwise and Great Lakes carriers are both collaborators and competitors of the railroads. As collaborators their relations are complementary.

COMPETITION OF RAILROADS WITH CANALS AND RIVERS

Such inland waterways as canals and canalized rivers are more definitely competitors of the railroads. River and canal transportation by steamboats and barges preceded the construction of railroads, and, during several decades of railway development, the carriers by rail, whose lines paralleled inland waterways or formed alternate routes for shipment, sought by all the means of competitive warfare—then unrestricted by government regulation—to take traffic from the several rivers and canals and to hold it to the rails. As the railways spread over the country and reached all shipping points, and as their rapid technical progress proceeded, the railroads were able to restrict the use of rivers and canals more and more until most inland waterways ceased to be of service. The Great Lakes held their own against railroad competition and have been and always will be bearers of a heavy tonnage. The more favorably located portions of the

Ohio and Mississippi river system (e.g. the Monongahela River above Pittsburgh) were and are used for bulky local traffic, and coal and some other bulk freight were towed down the Ohio and Mississippi in barge flotillas. The Erie Canal, connecting as it does, the Great Lakes with the Hudson River, and thus the Atlantic at New York, was and is used, but its tonnage has been surprisingly small, when one considers the exceptional advantages the Canal has because of the great traffic on the Lakes and at the seaboard and the highly developed industrial section it traverses. Moreover, the Erie Canal has been given a depth of 12 feet and other appropriate dimensions by works of improvement authorized in 1901 and fully completed in 1919. In spite of this enlargement of the canal, traffic has not been drawn to it in large amount from the railroads, and the tonnage on the waterway (figures for which are stated in Chapter XXXIII) has been disappointingly small.

In their competition with carriers by water, the railroads sought to put an end to river and canal transportation and largely succeeded in their purpose. It was not possible for the railroads to put the coastwise carriers out of business, and, for the reason just stated that it was often of advantage to the railroads to be a part of through rail and coastwise routes for the shipment of freight, the railroads, in many instances, instead of seeking to exterminate the coastwise lines, absorbed or acquired a controlling interest in them. Railroad control of coastwise carriers will be discussed presently—it was the second period in the development of the relation of the railways and coastwise shipping—a period that came to an end when the present relationship was created by Congress in adopting the Panama Canal Act of 1912, and other laws of later date.

The main concern of the States and the Federal Government, prior to the World War, was to prevent the railroads from making impossible the successful use of inland waterways. The public desired transportation upon those waterways to be kept free of railroad control. They were considered to be the natural and desirable competitors of the railroads that could carry certain bulk products of the farm and mines cheaper than they could be transported by the railroads—competitors that would keep railroad rates upon a lower level, and at the same time cause

the railroads to improve their service to prevent the waterways from securing traffic

FEDERAL LEGISLATION ACTS OF 1906, 1910, 1912, 1920, 1924
AND 1928

In carrying out the policy of the competitive relations of inland waterways and the railroads, the states and the Federal Government, while subjecting railroad charges to increasingly stringent control, did not regulate the charges of carriers by water. In 1906, it is true, the Interstate Commerce Commission was given authority to establish through routes by rail and water lines and to fix joint through rates, prescribing divisions of rates as between the rail and waterway carriers. This power of the Federal commission was strengthened and extended by the Panama Canal Act of 1912, but the real purpose of the legislation was not to subject the rates on waterways to government control, but to enable carriers by water to share traffic with the railroads under more favorable conditions. Moreover, the waterway when joined with a railroad to form a through route became part of a route competitive with an all-rail line.

The important Mann-Elkins Act of 1910 amending the Interstate Commerce Act and giving the Interstate Commerce Commission larger control of railroad rates contained a provision especially intended to strengthen the competitive position of inland waterways as against the railroads. It was provided that

Whenever a carrier by railroad shall in competition with a water route or routes reduce the rates on the carriage of any species of freight to or from competitive points, it shall not be permitted to increase such rates unless after hearing by the Interstate Commerce Commission it shall be found that such proposed increase rests upon changed conditions other than the elimination of water competition.

This clause in the Act of 1910, however, has been of less practical effect than was expected. In the adjustment of railroad rates generally, and in the elimination of unreasonable discriminations in such rates, it has been necessary to raise railroad rates at points which enjoyed disproportionately low rates due to former water competition that has ceased to exist. Furthermore, by the Transportation Act of 1920, the Interstate Commerce Commission was given power to fix not only maximum but mini-

imum railroad rates and was thus in a position to deal effectively with the entire problem of the relation of railroad charges to those of waterways

Certain provisions of the Panama Canal Act of 1912 were intended to protect waterways against the encroachment of the railroads, and to make more favorable the position of the waterway in the country's general system of transportation. The law forbade a railroad subject to the Interstate Commerce Act to secure control of, or have any interest in, a common carrier by water operated through the Panama Canal or elsewhere if the railroad does or may compete with the carrier by water. It was, however, provided that a carrier by water not operated through the Canal may be owned, controlled and operated by a railroad, if the commission holds that the carrier so owned or controlled is "being operated in the interest of the public," is "of advantage to the convenience and commerce of the people," and that the ownership or control by the railroad "will neither exclude, prevent, nor reduce competition on the route by water under consideration."

This provision of the Panama Canal Act of August, 1912, became effective in April, 1914, and the commission compelled seven eastern trunk line railroads to dispose of vessel lines they were operating on the Great Lakes. These lines were sold to one company, and the effect upon the development of line freight services on the lakes has been of questionable value to the public. The railroad interest in coastwise carriers, which at one time was extensive, has been eliminated in most instances. The Interstate Commerce Commission, however, held that the New York, New Haven and Hartford Railroad Company might retain its ownership of the New England Steamship Line which operates between New York and New England points, and that the Southern Pacific Railroad Company might continue to own the steamship lines which connect the company's terminals at Galveston and New Orleans with New York and thus enable the railroad company to provide a through service between the Atlantic and Pacific seaboard of the United States.

By the Panama Canal Act, the Interstate Commerce Commission's authority under the Mann-Elkins Act of 1910 was strengthened as regards the establishment of through rates and

maximum joint rates by interstate carriers by rail and by water and the regulation of the terms and conditions of handling interstate traffic by joint rail and water lines. The Panama Canal Act, furthermore, gave the commission power.

To establish physical connection between the lines of the rail carrier and the dock of the water carrier by directing the rail carrier to make suitable connection between its line and a track or tracks which have been constructed from the dock to the limits of its right of way, or by directing either or both the rail and water carrier, individually or in connection with one another, to construct and connect with the lines of the rail carriers a spur track or tracks to the dock.

It was further stipulated in the statute that:

This provision shall only apply where such connection is reasonably practicable, can be made with safety to the public, and where the amount of business to be handled is sufficient to justify the outlay.

The commission was also given "full authority to determine the terms upon which these connecting tracks, when constructed, shall be operated," and what sum shall be paid by each carrier toward the construction and operation of the tracks.

The obvious purpose of giving the commission the power to compel railroad companies to make physical connections with interstate carriers by water was to enable such water carriers to engage more largely and more favorably in interstate traffic by facilitating the exchange of tonnage with the railroads. The commission has, in some instances, required the provision of facilities for this interchange of traffic, and doubtless the fact that there is such a statute has made it easier for carriers by water to bring about physical connection and exchange of traffic with railroads.

The recent public policy has been to develop inland waterways and to promote their use in order that the waterways, both inland (i.e. lakes, rivers and canals) and coastal may be a definite part of the country's transportation system as a whole, comprising the coordinated facilities of carriage by road, air, rail and water. The inland waterways are being improved and maintained by the Federal Government for two purposes, that they may serve as routes of shipment alternative and competitive with the railroads, and that they may constitute facili-

ties additional and complementary to the railroads and thus be a part of a unified country-wide system of transportation. As a result of its experience with the operation of railroads and waterways for twenty-six months during and after the World War, the United States Government has sought with increasing definiteness, by legislation and administrative action, both to bring about a greater use of the waterways by traffic immediately tributary to them and to make the waterways parts of through rail and water routes available for shipments originating or ending at places not located upon the navigated waterways.

THE INLAND WATERWAYS CORPORATION AND OTHER COMMON
CARRIERS ON THE MISSISSIPPI

When the Government, as a war measure, took over transportation upon rivers and canals, the operation of facilities upon those waterways was vested in the Secretary of War. In 1924, Congress authorized the Secretary of War to organize, and to function through, a government-owned corporation—the Inland Waterways Corporation—which has carried on and developed the previously inaugurated barge line services between St. Louis and New Orleans on the lower Mississippi, between New Orleans and Birmingham on the Black Warrior River in Alabama, and between St. Louis and St. Paul upon the Upper Mississippi River. Service on the Missouri River to Kansas City was started in 1935. The declared purpose of the Government in continuing in the business of transportation upon these inland waterways is to demonstrate the possibility of their profitable use by private common carriers. The experience of the Inland Waterways Corporation, however, can hardly be said to be encouraging to private capital.¹

The completion, in 1930 (after twenty years of work), of the locks and channels providing a 9-foot, year-round waterway from the Pittsburgh District to the mouth of the Ohio may eventually result in a larger tonnage both on the Ohio and,

¹ During the calendar year 1932, the total tonnage carried was 1,572,869. The investment of the Federal Barge Line in real property, equipment, and other investments was \$25,417,721. The operating expenses were 91 per cent of operating revenue. If interest had been paid upon the investment, there would have been a deficit. For the calendar year 1934, the tonnage was 1,483,859. The gross revenue and net income in 1933 were much below those of 1932.

below its mouth, on the Mississippi, but it is probable that the increase will be mainly in the tonnage of industrial rather than common carriers. Private capital has as yet manifested no desire to purchase and operate the facilities and services of the Inland Waterways Corporation, but in 1932 there were nine private companies operating on the Mississippi River and its tributaries and reporting to the Interstate Commerce Commission. Companies transporting their own products do not report their equipment and tonnage to the Interstate Commerce Commission. Seven of the nine reporting companies are small concerns, the other two, the American Barge Line Company, chartered in 1927 and the Mississippi Valley Barge Line Company, chartered in 1931, are the two important common carrier lines on the Mississippi and Ohio Rivers. Each company is struggling against the adverse business conditions of a business depression to establish itself upon a profitable basis. The American Barge Line Company which operates from Pittsburgh to New Orleans reported for 1932 a net income equal to about 63 per cent of its investment. It also had a substantial corporate surplus. The Mississippi Valley Barge Line Company operating from Cincinnati and St. Louis to New Orleans, was, however, still "in the red" in 1932, both as regards net income and corporate surplus. Details as to equipment and service are presented in Chapter VII.

The Interstate Commerce Commission has acted as authorized by the Denison Act of 1928, referred to later, and has established through routes by rail and river with through rates lower than those for all-rail transportation. The traffic secured by the common carriers upon the rivers is what they can obtain in competition with the railroads. The rail and water carriers are physically connected or coordinated, and lower differential rates by rail and water are provided, but the relations of the carriers are more competitive than cooperative, as they naturally would be, it not being to the interest of the railroads to turn traffic over to a connecting waterway instead of handling the traffic all-rail to destination.

This reference to the barge lines operating a long-distance, common carrier towboat-barge service on the Ohio and Mississippi Rivers has been made because such services as they have

undertaken must be demonstrated to be profitable, if rivers are again to become a really useful part of the country's general transportation system. There is no doubt that large manufacturers of steel and large shippers of coal and oil may, when their plants are located as are those on the Monongahela River and at Pittsburgh, send large tonnages downstream in barges owned and operated by the producers, but what the Federal Government is seeking to demonstrate by the Inland Waterways Corporation, and what it is essential to know, is that common carrier barge line services on the major rivers and on such canals as the Erie and the one by which the Mississippi River and Lake Michigan are connected can be made profitable.

There are obvious obstacles and difficulties to be overcome if rivers are to become important traffic arteries. One is that no river such as the Ohio or Mississippi and even less such rivers as the Tennessee, the Missouri and the Arkansas, however well they may be canalized, can be depended upon to have an adequate flow of water at all seasons of the year, nor can the recurring floods be prevented from damaging terminals and canalization works. To put rivers like the Missouri and Mississippi in harness and keep them under control is a far greater task than to build and maintain a trunk-line highway or railroad. Furthermore, a river or a canal is only a trunk line, its use by common carriers requires a terminal at each important city located upon it, a terminal where local freight can be handled and where direct connections with railroads make possible the inexpensive interchange of freight between carriers by water and rail. Such interchange facilities are not readily established if there are bluffs at or near the river banks, and if the shore line of the river advances and recedes with the rise and fall of the stream. Moreover, while the railroads may "evidence a willingness to cooperate," they can hardly be expected to take the initiative in spending money to make physical connections with carriers by river when the result may be to facilitate the shipment or haulage of freight by river instead of by rail. The situation as between the railroads and the carriers on the Great Lakes or coastwise is different. There the coordination of rail and water services is in many instances mutually beneficial and comes about naturally; whereas, the coordination of rail with river and canal

carriers and their joint use of facilities in rendering complementary as well as competitive services can ordinarily be brought about only by action of the local, state or national governments, in some cases all three must act. For this reason, the attitude of the public as regards the desirable relations of the railroads and carriers by water is of peculiar importance.

FEDERAL POLICY AS TO COÖRDINATION OF RAILROADS AND INLAND
WATERWAY CARRIERS

The Transportation Act of 1920 definitely declares it to be the policy of the United States to foster the development of transportation upon the waterways of the country. The Interstate Commerce Commission was given power to fix not only the maximum rates that may be charged by the railroads but the actual, that is the minimum, rates. This provision of the law is a protection to the carriers by water whose rates are not subject to government regulation, except when the carriers by water perform part of a through service by railroad and waterway. The Commission may establish through routes by rail and water and fix the maximum through rate. In the case of such joint rates the commission can fix only the maximum rate, not the minimum, and designate the portion that shall go to the carrier by water.

The coordination of the services of carriers by rail and water is being brought about mainly by the establishment of through rail-and-water routes and joint rates by action of the Interstate Commerce Commission upon appeal of the Inland Waterways Corporation and to some extent by other carriers on the inland waterways. At first, the railroads opposed such action by the Commission, but they have now apparently decided not only that opposition is unavailing but that the closer coordination of carriers by rail and water may in the long run be more helpful than harmful to the railroads. The policy favored by the public was emphatically expressed in the Denison Act, adopted by Congress in 1928, which gave the Commission authority to establish through routes and rates by rail and water upon petition of a carrier by water without having a hearing and formal proceedings as had previously been necessary. The railroads for a while accepted this law without contest in the courts to deter-

mine its validity, and the Commission acted in accordance with the procedure made possible by the law, but in 1933, certain rail carriers secured an order from a United States District Court enjoining the enforcement of an order of the Commission fixing joint routes and rates without a prior hearing.² Upon appeal, however, the United States Supreme Court upheld the order of the Commission and the validity of the Act of 1928.³ When the attorneys for the Commission presented the case to the Supreme Court they announced that in the future the Commission would give the railroads an opportunity to be heard before an order establishing joint routes and rates became effective.

The liberal financial support that the Federal Government has given the Inland Waterways Corporation from 1924 to the present time to enable it to maintain and extend its services, the enactment of the Denison Law, the readiness of the Interstate Commerce Commission to facilitate transportation by water by establishing through rail and water routes and rates, and the acquiescence of the railroads in the action of the Commission are all evidence of a changed policy as regards the relations of railroads and inland waterways. Indeed some railroad officials are now advocating a change in the Panama Canal Act and other legislation that will permit the railroads to engage in transportation upon inland and coastal waterways, such services to be subject to the same measure of regulation as are all railroad services. It is not probable that Congress will in the near future allow the railroads to extend their services by operating or owning boat lines, but, if it be true that rail and water transportation services are complementary as well as competitive, and if the full coordination of rail and water carriers, both subject to government regulation, is in the public interest, the eventual amendment of the present restrictive laws may be expected.

RAILROAD OWNERSHIP AND CONTROL OF CARRIERS BY WATER IN DOMESTIC COMMERCE

Reference has been made to the effect of the provision of the Panama Canal Act prohibiting a railroad from owning, con-

² *Illinois Central Railroad Co et al v United States et al*, District Court D. Delaware 3 Federal Supplement 1005 (issue of September, 1933)

³ *Law Ed. Advance Opinions*, Vol. 78, pp. 610-615

trolling or having an interest in a carrier by water if such carrier does or may compete with the railroad. The Antitrust Act of 1890, making illegal combinations in restraint of trade, also interfered to some extent with the railroad control of competing carriers by water, but, prior to 1914, when the prohibitory provision of the Panama Canal Act of 1912 became effective, the railroads controlled a large share of the vessels operated in coastwise commerce and as has been stated, the main package freight (not bulk freight) lines on the Great Lakes were railroad-owned.

According to a report made in 1914 by the Merchant Marine and Fisheries Committee of the United States House of Representatives, the railroads, on June 30 of that year, directly or through subsidiary companies owned or controlled 684 vessels—barges as well as steamers—having a gross tonnage of 885,294 tons employed in the domestic trade of the United States. This comprised but 13 per cent of the entire documented coastwise tonnage under the United States flag, but, in addition to the tonnage which they definitely owned or controlled, the railroads were affiliated with various carriers by water through interlocking stock ownership, directorates or officers.

The coastwise vessels owned or controlled by the railroads were, with the exception of barges, those operated in regular line services. There were, in 1914, 209 railroad-owned or controlled vessels of 589,561 tons gross engaged in regular line traffic, and this amounted to nearly 50 per cent of the entire regular line tonnage employed in the domestic trade of the United States. The railroad ownership of tonnage on the Pacific Coast was less pronounced and amounted to but 19.8 per cent of the total, whereas on the Atlantic and Gulf seaboard the percentage was 61.9 per cent, and on the Great Lakes 64.2 per cent. Moreover, 32 per cent of the regular line tonnage on the Atlantic and Gulf seaboard was owned or controlled by two shipping consolidations, The Atlantic, Gulf and West Indies Steamship Lines, and the Eastern Steamship Corporation, both of which consolidations were affiliated with railroads by "community of interest."

The legislation from 1912 to 1928, referred to in the preceding pages, has since 1914 greatly reduced railroad ownership and

control of carriers by water in the domestic commerce of the United States. The New England Steamship Line has remained under the ownership of the New Haven Railroad, but the Pacific Mail Steamship Company, having been debarred from operation through the Panama Canal, its owner transferred the control of the company to W R Grace and Company. The Pennsylvania Railroad was obliged to part with lines on the Chesapeake Bay, and the railroad-owned lines on the Great Lakes were sold to The Great Lakes Transit Company. In general, most railroads have withdrawn from financial interest in carriers by water, in domestic commerce, not only competitive but also non-competitive. Moreover, the numerous indirect methods formerly employed by the railroads to prevent or limit the interchange of railroad traffic to other than a favored carrier by water have either been held to be illegal or have been voluntarily given up by the railroads. Whether there is to be a return to a closer affiliation of carriers by rail and by water, both under government regulation, is an interesting question that has been raised in the preceding discussion. The answer to the question lies in the future.

COÖPERATION AND COMBINATION OF RAIL AND OCEAN CARRIERS

The foregoing account of the relations of the carriers by rail and water has referred mainly to the underlying theory of those relations and to the development of the coördination of the railroads with the inland waterways. An equally important matter is the relation of the railroads to carriers on the ocean.

Until the Panama Canal Act prevented them from doing so, the railroads invested largely in coastwise lines to bring about consolidation or control, the main purpose of the railroads, in most instances, being to control competition rather than to further the coordination of services. As has been explained in the preceding pages, the legislation of Congress from 1906 to the present has sought first to assure and perpetuate the competition of rail and water carriers, and second to bring about their fuller coordination. There is now a large measure of cooperation in services by the railroads and the coastwise lines, although legislation has terminated most railroad ownership of coastwise carriers.

What is the relation of American railroads to ocean carriers and their services? While the cooperation of ocean carriers and American railroads by common ownership or control was mainly confined to carriers engaged in the coastwise and Great Lakes commerce, there also were formerly numerous instances in the foreign trade. The Southern Pacific Railroad Company for many years controlled the Pacific Mail Steamship Lines, the Great Northern Railroad Company until 1917 operated steamships from the Pacific coast to the Orient, the Chesapeake and Ohio at one time ran a line from Newport News to London and Liverpool, the Reading Railway once had a service from Philadelphia to London and Avonmouth, and the Pennsylvania Railroad controlled the American Line to England. At present, however, the direct control of steamship tonnage in the foreign trade by American railroads is relatively unimportant. The Canadian Pacific Railway is more heavily interested in steamship tonnage, as it operates lines on the Pacific to the Orient and on the Atlantic to Europe.

The reasons why the principal ocean trades, such as those of the North Atlantic route, are so largely free from the direct or intercorporate control of American railroads are both historical and economic. The ocean transportation service across the North Atlantic was well organized and highly developed long before the railroads began to carry a large volume of traffic for export. As the railroads increased this traffic they, in the main, made use of previously existing ocean carriers, who have developed their facilities with the growth of the tonnage turned over to them by the railroads. The trade of a great port like New York, for example, reaches out to all parts of the world and includes not only the commerce of the large foreign ports with which there is a heavy and regular volume of trade, but also the smaller and more out-of-the-way foreign sources of this country's international trade. To handle such a commerce as New York City has, special ocean carriers are desirable, there is need not only for a few large steamship lines, such as the railroad interests might provide, but also of the services of smaller lines and independent vessels.

The common ownership or control of railroads and ocean carriers engaged in the foreign trade is relatively limited in

scope, but the fact should not be overlooked that a measure of cooperation is obtained at many ports through ocean-rail traffic agreements or preferential contracts New York, New Orleans, and Galveston are termed "open ports" in the sense that the railroads and ocean carriers serving them apparently are not parties to such contracts Thirty-two preferential contracts or arrangements covering nearly all the other ocean ports of the United States, however, were reported to a congressional committee in 1914 and others may have been overlooked *

Prior to a decision of the Interstate Commerce Commission rendered on May 7, 1912, many of the agreements were mutually "exclusive" Thereafter some of them were modified so as to make them mutually "preferential" rather than exclusive, the Commission having decided that although under the Interstate Commerce Act, as amended in 1906 and 1910, a railroad may reserve wharves for its own use and for preferred ocean carriers, it must at the same time afford the public access to equal facilities elsewhere at equal rates, and that the issue of through bills of lading on export traffic via a favored ocean line obliges the railroad to issue such bills via other lines serving a given port, subject to reasonable regulations ⁴ Moreover, Congress in enacting the Panama Canal Act of August 24, 1912, definitely provided that if any rail carrier subject to the Act to regulate commerce enters into arrangements with any carrier by water operating from a port in the United States to a foreign country, through the Panama Canal or otherwise, for the handling of through business between interior points of the United States and such foreign country, "the Interstate Commerce Commission may require such railway to enter into similar arrangements with any or all other lines of steamships operating from said port to the same foreign country "

Railroads and ocean carriers also cooperate in the issuance of through bills of lading, thereby relieving interior shippers, who desire through bills for their foreign consignments, from the need of engaging special port representatives to attend to the transshipment of their cargoes at the ports of export and

⁴ Committee on the Merchant Marine and Fisheries, Proceedings in the Investigation of Shipping Combinations, Vol IV, Chap ix, p 238

⁵ Mobile Chamber of Commerce *et al* v. Mobile & Ohio R R Co., *et al*, 23 I C C Reps, 417, May 7, 1912

to the formalities connected therewith. There have, moreover, been instances in which the rail and-ocean carriers quoted joint or through freight rates to and from foreign countries. Until after 1890, for example, many American railroads took a percentage of fluctuating through import rates from Europe to inland destinations. Since then the practice of quoting through rail-ocean rates has declined, because of the fluctuating character of ocean rates, and especially because the Hepburn Amendment of 1906 to the Interstate Commerce Act obliges American railroads to publish and file their rail rates on imports and exports as well as on domestic traffic and to give a notice of 30 days of any change in rates. These legal requirements have made it impossible for railroad rates to be a percentage of constantly fluctuating through rail-ocean charges. At present it is mainly in the domestic trade that through rail-water rates are quoted over certain rail-coastwise or rail-lake routes.

Combined rail-and-ocean rates on foreign shipments are made mainly by combination of current ocean rates with legally collectible railroad rates. The latter are either the regular domestic rail rates or special export or import rail rates applicable to and from shipside.⁶

The railroads further cooperate with the ocean carriers in handling the foreign trade by providing special facilities at the terminals, where rail connections have been established at many ports for the purpose of reducing transfer expenses, and where the railroads provide car ferries and floats, freight lighters and barges, floating and stationary grain elevators, wharves, warehouses, coal terminals, and freight-handling appliances. Their special foreign trade regulations include modified demurrage and storage rules, special shipping requirements in case inland freight is forwarded on through bills of lading and in many instances special freight handling, wharfage, and forwarding services.

The traffic department of many railroads includes one or more "foreign freight agents" who have charge of the solicitation of import and export traffic and are assisted by a special soliciting force. There may also be a "European freight agent," "South

⁶ See Chap. xxv.

American agent," or other special agent. A beginning has been made in the development of foreign trade advisory bureaus designed to give expert advice to exporters and importers regarding rates and routes, shipping rules and customs, shipping papers and foreign markets. Well-established cooperative rail-ocean services for the through transportation of immigrants to interior destinations are also provided. These are considered in the account of ocean passenger services.

REFERENCES

Consult references listed at the end of the preceding chapter, also Decisions of the Interstate Commerce Commission in

*Ex Parte 99 Application of Mississippi Valley Barge Line Co
182 I C C 512*

*Ex Parte 102 Application of American Barge Line Co
182 I C C 521.*

PART V
FREIGHT CLASSIFICATION
AND CHARGES

CHAPTER XXIV

FREIGHT CLASSIFICATION AND TARIFFS ON THE OCEAN AND INLAND WATERWAYS

A LARGE common carrier such as a railroad company or a steamship line on the ocean or Great Lakes transports hundreds or even thousands of different commodities some of which, as iron and steel products, for example, are of many descriptions. For each of the many articles of freight, there must be an appropriate rate, and in many if not most instances there must be rates applying from more than one place to several or many destinations. It would be obviously impossible to have a separate or individual rate by railroad or vessel line for each article of freight, even from each major point of shipment to each principal destination. Articles must be grouped or classified as a general preliminary to rate-making. Individual rates, in so far as they are quoted, must be limited to the commodities of major importance shipped in large quantities. Most articles must either be grouped together and given "general commodity" rates or be assigned a place in a freight classification containing an appropriate number of ratings or classes ranging from articles of high value and light weight to those of low value per bulk or tonnage.

The distinction between a freight classification and a freight tariff should be kept in mind. Classification and rate-making are two distinct but inseparable parts of the process of constructing a tariff applying to classified freight. A freight classification contains no rates, but it is a comprehensive list of commodities, each commodity listed being assigned to a class that is determined partly by considering the costs and the special conditions of transportation applying to the article or commodity in question. The main factor controlling the class to which an article is allocated is, however, not so much what rate the article

should pay if the charge is based upon the relative cost of transporting that article as compared with other commodities, but what rate it *can* pay, and this depends mainly upon the value of the article and the value to the shipper of the service of transportation. Articles of high value, shoes and clocks for instance, may be given a high classification, while leather and steel bars must be given a lower rating. Starting with an adequate number of classes, all articles or commodities can be assigned to classes for which the rates are such as the shippers can or will pay without foregoing the service or securing some other means or agency of transportation. Articles may be and are shifted from one class to another in response to changes in industrial conditions or in the competitive relations of rival carriers.

While all kinds of railroad freight are covered by the classification, there are, nevertheless, some bulky commodities, such as iron ore, coal, stone, timber, of small value per unit of size or weight, and which are shipped in large volume, that must needs be given rates lower than they would or could pay if charged a class rate. Such commodities are necessarily given ex-class or "commodity" rates. Although a large share of the total railroad tonnage is moved on commodity rates, the number of such rates is small as compared with those on articles taking class rates. With the evolution of industry, its zoning and greater specialization, the number of commodities given ex class rates tends to become less. Moreover the commodity rates are as definite a part of tariff publications as are the rates upon the several classes of freight.

As the result of a long process of evolution and in consequence of the requirements of government regulation, railroad freight is fully classified. The railroad service as now performed and government regulation as now exercised would not be possible without freight classification, although it does not follow from this that the present form of classification is the final one. It may well be that changed conditions resulting from the large development of highway transportation may compel the railroads to make radical modifications in their freight classifications, although the changed conditions will by no means make the classification of railroad freight unnecessary.

First of all, freight classification is necessary from the standpoint of the railroad carriers because rate-making would otherwise be impossible. Freight classification, and the rate structures thereby made possible, are requisite to the establishment and maintenance of the necessary relations of the rail carriers with each other, with competing carriers, with the shippers and localities they serve, and with the governmental authorities by whom they are regulated. All railroad freight rates must be published and open to the public and to the carriers concerned. Rates must be reasonable *per se*, and they must not unreasonably discriminate as among shippers or places or commodities. Rates being subject to regulation—to adjustment and ultimate determination—by the government, they must be worked out, published and filed with the government in a systematized, intelligible form that would be impossible without a comprehensive, logical and simple classification of the thousands of articles transported by rail.

FREIGHT CLASSIFICATION AND TARIFF MAKING PRACTICE OF OCEAN CARRIERS IN THE FOREIGN TRADE

The freight transported on the ocean being large in volume and variety, one would expect ocean carriers to have classified their traffic and to have worked out tariffs covering rates as generally as do railroad tariffs. Such, however, is not what one finds. Ocean carriers engaged in the foreign trade have limited the classification of freight and the construction and publication of tariffs to a minimum.

There are several reasons why this is possible. One reason is that the rates of carriers in the overseas trade are not fixed by the government, nor are the carriers' services regulated to much extent. Interline competition being active, ocean carriers have, whether wisely or not is at least doubtful, adhered to the practice of secrecy in quoting rates. They have preferred the greater flexibility of rates made possible by avoiding or minimizing the classification of freight, and the formulation and publication of tariffs. Their competitive relations have, it is true, led to destructive rate wars in periods of business depression when traffic falls off, but when traffic is heavy and the demand for transportation and for vessels rises sharply, as it regularly does

with the return of prosperity, there is an advantage in having rates that are flexible and can be increased at will, instead of having rates that have been stabilized by formulation and publication

Except in times of acute business depression, ocean carriers have been able, by means of conference agreements as to minimum rates, to keep their competitive struggles within tolerable limits. This is obviously more easily possible among ocean carriers than among railroad companies, for, while the relations of ocean carriers with each other and their problems of rate making are complicated, they are not so complex and difficult as are those of the railroads. The ocean carrier serves many shippers, and competition for traffic may be keen, but ocean vessels and lines are operated only between ports, while the railroad may serve hundreds or even thousands of places, large and small, and tens of thousands of shippers. The multiplicity of places and shippers served and of commodities transported, and the interplay of territorial and industrial competition throughout the entire economic structure served by the railroads make the publicity and stability of railroad rates indispensable to the satisfactory conduct of business. Freight classification, published tariffs, publicity and government regulation of rates must prevail in the railroad service, whereas this practice is not absolutely essential in ocean transportation, as is shown by the current practice of carriers.

The facts as to the present practice of ocean carriers in the overseas trades regarding the classification of freight, the making of tariffs and the publication of rates are concisely and well stated in the following paragraphs taken from a memorandum received in November 1933 by the authors from officials of the United States Department of Commerce.

In only a few instances do any of the carriers engaged in the foreign commerce of the United States use classifications in the sense in which classifications are used by railroads in the United States. In most instances they establish a separate commodity rate on each kind of cargo moving in volume and a blanket rate for general merchandise to cover all articles on which no specific commodity rates have been established. From time to time, as tonnage of any given commodity increases substantially, a commodity rate is set up for that item. Since individual commodity rate items are seldom transferred to the general

merchandise item by cancellation, the number of individual commodity rates is steadily increasing

In the foreign commerce of the United States there is to-day in practically every trade a steamship conference to which a majority of the lines in that trade belong. The members of these conferences, whose agreements, when approved by the Department of Commerce under authority of Section 15 of the Shipping Act, become exempt from the antitrust laws, observe either uniform rates or agreed-to differential rates based upon the class of service rendered by each of the carriers. The majority of the conferences compile tariffs of rates and governing rules and regulations, but such tariffs, at the present time, are not usually distributed to the public. For the most part, the tariffs serve as information to the employees and agents of the different lines comprising a conference as to what rates the lines have agreed to charge, and what rules and regulations have been agreed to. In many instances the conferences agree only upon minimum rates, so that tariffs in such cases are tariffs of minimum rates only. Although it is possible, of course, for a conference member to charge more than a minimum rate agreed upon, practically this is seldom done. A substantial number of the conferences now file copies of their tariffs with the United States Shipping Board Bureau of the Department of Commerce, where they are available for public inspection.

In recent years there has been a noticeable tendency on the part of ocean carriers in foreign commerce to give more publicity to their rates than in the past. It is customary in some trades for the conferences, following meetings at which rate changes have been agreed upon, to give to the press a notice of such changes.

It will be noted, as stated in the foregoing quotation that with few exceptions ocean carriers in the foreign commerce do not make a freight classification but compile for their own use commodity rates and have a "general commodity" rate. The rates, which are usually minimum rates, that are agreed upon in the conferences are compiled and printed in tariffs accompanied by rules and regulations to be observed in applying the tariff rates. The tariffs are not based upon a freight classification nor are they published, but there is at present a commendable "tendency on the part of ocean carriers in foreign commerce [i.e. conferences of ocean lines in some trades] to give more publicity to their rates," especially by informing the public of changes in rates that may be made at conference meetings. One may generalize broadly by saying that freight classification, tariff making, and rate publicity among ocean carriers in the foreign trade are in the process of evolution from bargaining practices and

secrecy to ultimate "rationalization" and stabilization Government regulation being largely absent, its place as a controlling force must be filled by effective cooperative action of the interested carriers In other words, the industry itself must develop and enforce its own "code "

FREIGHT CLASSIFICATION AND TARIFF MAKING PRACTICE OF INTER-COASTAL, COASTWISE AND GREAT LAKES CARRIERS

The evolutionary process just referred to has proceeded further in the freight classification and tariff making practice of the intercoastal and the seaboard and Great Lakes carriers engaged in the interstate commerce of the United States The traffic of the intercoastal and coastwise carriers consists in large part of freight received from, or turned over to, the railroads There is much freight moved as through shipments by joint rail and water lines operated under a common arrangement by the connecting carriers, the services and charges for such freight being subject to regulation by the Interstate Commerce Commission Even the port-to-port traffic of water carriers that does not move as through shipments over connecting rail and ocean carriers, and on joint rates, may not (and in fact in large part does not) originate or terminate at the ports The total freight charges paid by shipper or consignee may be the sum of a rail rate and a water rate, but in general, the practices of the two separate carriers, as regards freight classifications and tariffs, need to harmonize with each other in order that traffic may move advantageously and freely from seller to buyer Thus, commercial and traffic considerations, together with government regulation requiring the publication and filing of tariffs, have caused most common carriers by water in interstate commerce to adopt, with due simplification, the appropriate railroad freight classification, of which there are three, the Official Classification (of the eastern trunk-line railroads), the southern and the western, which are published together as the Consolidated Freight Classification

The tariff practices of the intercoastal, seaboard and Great Lakes carriers and the requirements of the government regarding the publication and filing of rates are stated as follows in the memorandum of the Department of Commerce from which the last quotation was made.

Carriers by water engaged in intercoastal commerce by way of the Panama Canal are subject to the rate filing requirements of the Intercoastal Shipping Act of 1933. Under that statute, these lines must file with the Department of Commerce their exact rates, rules and regulations and cannot change such rates, rules and regulations except after 30 days' notice unless the Department gives special permission for a change on less than 30 days' notice. The Intercoastal Act and the Department's tariff regulations promulgated thereunder also require these carriers to post their rates at the ports where cargo is received for transportation.

Most of the carriers in the intercoastal trade are parties to freight classifications used by the railroads. The carriers operating in the intercoastal trade between Gulf of Mexico and Pacific Coast ports, however, although formerly using a classification, have followed the practice since the passage of the Intercoastal Act of having specific commodity rates with a general merchandise rate for items not covered by individual rates, as described above in connection with transportation in foreign commerce.

Common carriers by water in interstate commerce¹ on the high seas and the Great Lakes, exclusive of the intercoastal carriers, are subject to the tariff-filing requirements of the Shipping Act of 1916.

In a majority of the trades coming under the maximum rate-filing provisions of the 1916 Act, there are classifications somewhat similar to those used by railroads. A number of the carriers use the same classifications as the competing railroads in their territory. The statute of 1916, however, requires the filing and posting of maximum rates only. A substantial number of the subject carriers, particularly those who have through rail and water tariffs on file with the Interstate Commerce Commission, file as their maximum rates on port-to-port business the actual rates which they are currently charging to all shippers. This is particularly true of carriers operating in the Atlantic coastwise trade. Carriers operating in the Pacific coastwise trade, however, file as maximum rates, rates higher than those which they are currently charging.

Those carriers subject to the filing requirements of the 1916 Act, who file as their maximum rates actual rates charged by them, also post such actual rates at places where they receive cargo for transportation. The carriers who file and post maximum rates higher than the actual rates charged by them give only a limited amount of publicity to the actual rates charged. Only a few of them have printed tariffs of current rates which are available to the public.

The Intercoastal Shipping Act of March 3, 1933, has brought about full publicity of the tariffs of the common carriers by

¹ The rate filing requirements of the original 1916 Shipping Act extend not only to purely coastwise port to port commerce but to commerce between the United States and its insular and territorial possessions, including the Philippine Islands and the Canal Zone.

water operating between the two seaboard of the United States. The Act has also done much to stabilize intercoastal rates by water, the carriers concerned being obliged to file with the Shipping Board Bureau of the Department of Commerce the schedule of actual rates they are to charge, and the rates so filed may be changed only on 30 days' notice unless a shorter period be allowed by the bureau. The Act also provides that the rate schedules filed "shall contain the classification of freight" and "any rules or regulations which in anywise change, affect or determine any part or the aggregate of such aforesaid rates, fares, or charges or the value of the service rendered." From this it would seem that the government has authority to require the intercoastal common carriers to file a freight classification and to construct their tariffs in accordance therewith. Presumably this will be required when the many problems have been solved that resulted from the termination of the Shipping Board and the transfer of its duties to the Department of Commerce, and when the new regulatory machinery has been fully set up and has been in operation for a while.

The coastwise carriers, other than those in the intercoastal trade, and the Great Lakes carriers, as has been stated, are required to file only maximum rates, not those actually charged. Many of these common carriers, particularly those on the Atlantic seaboard and on the Great Lakes interchange traffic with connecting railroads, the Interstate Commerce Commission having power to require the railroads, if they do not act voluntarily, to become parts of through rail and water or water and rail routes over which traffic is handled at joint rates which must be filed with the commission, and which the commission may fix and apportion among the participating carriers. Hence it is, as stated in the above quotation, that those coastwise carriers, particularly those operating on the Atlantic seaboard, "who have through rail and water tariffs on file with the Interstate Commerce Commission, file (with the Bureau of the Department of Commerce) as their maximum rates on port-to-port business the actual rates they are currently charging to all shippers."

The situation on the Pacific seaboard is such that through routes and rates by rail and water are avoided so far as possible by the competing railroads and coastwise lines, and the

carriers by water adhere to the practice of filing with the Shipping Board Bureau only maximum rates, thus retaining greater freedom of rate-making in competition with the railroads. The merchandise traffic of common carriers on the Great Lakes consists in large part of freight from or to points not on the Lakes, that is transported over connecting carriers on through lake and rail or rail and lake rates over which the Interstate Commerce Commission has jurisdiction. The tariffs of the Lake lines are based upon the Official Classification in force in the territory of the eastern trunk-line railroads.

The port-to-port traffic of the common carriers on the Great Lakes, as on the seaboard, is not subject to regulation by the Interstate Commerce Commission. For such traffic, the requirements as to filing of tariffs are those contained in the Shipping Act of 1916. The current practice as stated in the above quoted memorandum, is that "In a majority of the trades coming under the maximum rate-filing provisions of the 1916 Act, there are classifications somewhat similar to those used by the railroads. A number of the carriers use the same classification as the competing railroads in their territory."

PRACTICES OF CARRIERS ON RIVERS AND CANALS

The carriers on the rivers and canals have much the same relation to rail carriers as do the lines on the Great Lakes. The common carriers on the rivers and canals, as compared with contract and private or industrial carriers on these waterways, still play a minor rôle. The traffic originating and terminating on these inland waterways would not furnish sufficient tonnage for the profitable operation of a common carrier. The inland waterway is only a trunk line, it must have traffic feeders. The water carrier must exchange traffic with connecting railroads. There must be through routes and rates by joint rail and water lines, and this has been amply provided for by successive acts of Congress, particularly by the Inland Waterways Corporation Act of 1924 as amended by the so-called Denison Act of 1928, that are discussed in other parts of this volume.

In so far as common carriers on rivers and canals classify freight and print tariffs, they would naturally adopt the forms followed by the connecting railroads with which they do or may

interchange traffic The traffic handled on joint rail and water routes is subject to regulation by the Interstate Commerce Commission, which has authority to establish such through routes and to fix and apportion the joint rates The commission cannot fix the actual rate to be charged by the water carrier, as is done in the case of railroad charges, but, although the commission may, "where one of the carriers is a water line," fix only "the maximum rates, fare and charges applied thereto," as a matter of fact the rate of the water carrier is really determined when the commission fixes the rate over the joint rail and water route and decides what portion thereof shall go to the carrier by water The rates over the joint rail and water route being subject to the control of the Commission, the participating water carriers must observe the Commission's requirements as to freight classification and the publishing and filing of tariffs

The Shipping Act of 1916 does not apply to carriers on inland waterways other than the Great Lakes, hence the port-to-port rates of common carriers on the rivers and canals are without government regulation The maximum rates for this traffic do not have to be filed with the Shipping Board Bureau of the Department of Commerce, they do not need to be published and given publicity, and the carriers are free to quote secret rates or, if they prefer to do so, to follow a policy of publishing their charges and adhering to them In general, it is the practice of carriers on rivers and canals to charge such rates as will enable them to secure traffic that would otherwise move by rail The charges of the unregulated carriers by water are determined by the level of the rates which the government permits the railroads to charge

The foregoing statement concerning the practices of carriers by water as to the classification of freight and the making, publishing and filing of tariffs shows that the intercoastal carriers, the coastwise lines on the seaboard and on the Great Lakes, and those operating on canals and rivers follow differing practices and that dissimilar requirements are imposed by government regulation The carriers by water in their relations with each other and with the public have a status similar to that of the railroads before, or in the early years of, government regulation If, as seems probable, the general principles that are now fol-

lowed in the regulation of railroads are, in the near future, applied, with appropriate adaptation, to interstate carriers by water, we may expect that the practices of both classes of carriers as to freight classification, and the publishing and filing of tariffs, will be harmonized and stabilized

REFERENCES

Several of the subjects discussed in this chapter are treated in the references listed at the end of the following chapter, and the volumes there listed may be consulted to advantage

CHAPTER XXV

MAKING OF FREIGHT RATES ON THE OCEAN AND INLAND WATERWAYS

IN making freight rates, prices are fixed for services rendered. The conditions under which the business of water transportation is performed—to what extent the business is or is not monopolistic or competitive and in what measure monopoly is controlled and competition is restrained—determine the fixing of prices or the making of rates. Previous chapters have discussed monopoly and competition in the ocean transportation service and have set forth the facts regarding steamship conferences and agreements. These chapters and the one on the classification of freight by carriers upon ocean and inland waterways and the practice as regards the publication of tariffs have provided a background for a presentation of the subject of how freight rates are made on the ocean and inland waterways and for an analysis of the forces and factors that control such rates.

LINE AND CHARTER SERVICES OF OCEAN CARRIERS

As has been pointed out from time to time in previous discussions, ocean vessels are operated as component parts of a "line" for the performance of scheduled line services or they are operated singly or as an individual unit under charter in "tramp" or chartered services. Moreover, there are several kinds of each class of service. There are cargo lines composed of vessels that carry freight only, there are lines whose vessels are combination passenger and cargo carriers, and there are express lines whose large and speedy vessels carry little else than passengers, mail and express. Likewise, vessels that are chartered for the transportation of freight may be secured for a trip or under various conditions for a period of time.

Line vessels perform more than one kind of service, and the service obligations respectively of the owner and the charterer

of a vessel vary with different contractual relationships. Ocean freight lines perform both regular or standard freight services and exceptional services, as the need arises and opportunity offers, the latter consisting of the carriage of supplemental freight at low rates determined by special agreement with shippers. Such supplemental freight is taken as "berth" cargo or in lieu of necessary ballast.

RATES FOR LINE SERVICES ON THE OCEAN AND
INLAND WATERWAYS

The rates for the regular or standard ocean line freight services are for the most part the commodity rates—for some lines class rates—that each line includes in its tariffs (usually not published by overseas carriers) after the minimum rates for competitive traffic have been fixed by the conference of which the interested lines are members. As has been explained, competitive ocean lines are in most instances members of a conference or of several conferences in which agreements are entered into as to minimum rates on their competitive traffic and as to the allotment of vessels and sailings to the several rival ports served.

Instead of paying rates currently in force when shipments are made and depending upon securing adequate space when traffic is offered, some large and regular shippers enter into agreements with steamship lines whereby traffic is taken at rates fixed by time contracts, the carrier obligating himself to provide prompt transportation for the stipulated amount of freight. The manager of a line of vessels is glad to secure freight in advance, because a steady volume of traffic, even at moderate rates, is ordinarily more profitable than a fluctuating tonnage at current rates. The manufacturer or exporter engaged largely in the foreign trade can carry on his business more advantageously if he has an advance guarantee of the shipping facilities his traffic will require week by week or month by month, and if he knows what freight rates he will have to pay to place his products upon the foreign market. The time contracts between shipper and carriers cover various periods—a month, a season, or a year—and stipulate that the carrier shall provide facilities for transporting a designated tonnage of the shipper's wares or products.

at such dates and at such rates as are named in the agreement

The intercoastal lines operating via the Panama Canal between the two seaboard of the United States have their conference for the determination of rates and the adjustment of their other interrelations, but the presence of lines not in the conference, the surplus tonnage and the consequent intense competition, especially during a severe depression in business, have prevented the conference from accomplishing an effective stabilization of rates. The conference agreements have been frequently revised.

The situation, however, was improved by the Copeland Act of March 3, 1933, which required intercoastal line carriers to publish, not their maximum, but their actual tariffs and file them with the United States Shipping Board (now the Shipping Board Bureau of the Department of Commerce). The tariffs become effective 30 days after filing and can be changed only upon 30 days' notice, unless the Shipping Board Bureau authorizes the rates to become effective or to be changed within a shorter period. While the government authority cannot fix the intercoastal rates it can, upon its own motion or upon complaint of an interested party, and after a hearing, order the rates to be changed, if they are found to be unreasonable or unjustly discriminatory. The Copeland Act undoubtedly gives greater stability to intercoastal line rates, and it is probable that the beneficial effects of the Act will ultimately cause Congress to take the further desirable step of applying to the rates of the intercoastal lines the same measure of government regulation as pertains to railroad charges.

The port-to-port interstate rates of the coastwise lines operating upon the Atlantic-Gulf and the Pacific Seaboard of the United States are determined by the competition of the lines with each other and with the railroads. As stated in the previous chapter, their tariffs are modeled upon those of the railroads, and for the most part the rates are so fixed as to secure and hold traffic that might move by rail. Except for through traffic handled under a common arrangement by rail and connecting water carriers, the rates of the coastwise lines are not subject to effective government regulation. The regular line carriers in interstate commerce are prohibited from making unfair discriminations as between ports and among shippers. They are

required to file schedules of maximum rates with the Shipping Board Bureau which may change such rates, but this does not result in real regulation of rates

The facts as to the rates of the steamship lines on the Great Lakes are much the same as those applying to the coastwise lines. The Lake lines are in direct competition with the railroads, and their tariffs are made and rates fixed to meet that competition. There is not much competition among lake carriers for general merchandise or package freight, most of the formerly independent lines having been brought under one management. The traffic on the Great Lakes consists mainly of ore, coal, oil and other heavy freight carried in bulk-cargo vessels that are especially designed for the commodity they are to transport, and many are operated by producers who use their own vessels primarily to transport their products to market. There are standardized schedules of rates on iron ore and coal that apply to such traffic as is carried for other shippers. There is, however, a heavy coal tonnage up the lakes, the rates on which are of concern to the public as well as the carriers. Such rates are fixed at what the traffic will bear as determined by carrier competition and by conditions of the market.

On the rivers such as the Ohio and the Mississippi, and their tributaries, the traffic consists mostly of tonnage moved by producers, manufacturers and builders in connection with their business. Common carrier lines make such port-to-port rates as competition, principally with the railroads, will permit, there being no government regulation except as to rates via through rail-river, or rail-river-rail routes, the Interstate Commerce Commission having the power to establish such routes and the joint rates applying thereon. Carriers on the canals, as on the rivers, make rates without government interference. They are competitors of the railroads for such traffic as is adapted to barge transportation. It is interesting to note that on the Erie Canal, the most important of the long canals in the United States, the traffic of the common or contract carrier barge lines is becoming less important as compared with that of the industrial carriers that are operating vessels in connection with their business—vessels especially adapted to their needs as producers and shippers. Industrial carriers are concerned with costs of trans

portation and not with rate-making, and present indications are that such carriers, rather than those that serve the public generally, are the ones that are to make an increasing use of inland waterways

TRIP AND TIME CHARTER RATES

Ship chartering and the several kinds of charter parties have been explained in detail in Chapter XII. The following discussion of charter rates will involve some duplication, but it will add to the clearness of the account of ocean rates to relate the rates to the several kinds of charter parties.

Formerly vessels operated under charter or as "tramps" transported the larger share of ocean-borne traffic. At present in consequence of the increase of international trade, the more regular flow of commerce, and the greater importance of time and certainty in transportation services, by far the larger part of the traffic on the ocean is handled by line vessels operated on definite schedules. There is still, however, much use made of chartered vessels. Less than one-fifth of the tonnage of the foreign commerce of the United States is now handled by chartered vessels, but for some countries the share is larger. Traffic requirements are not the same in all countries.

Vessels being hired or chartered for a trip or for a period, there are trip charters and time charters, and of each of these there are different kinds. A shipper having a full vessel load of grain or other freight that will require the whole or the larger part of the capacity of a vessel can frequently save in transportation costs by chartering a vessel for a trip. With the assistance of a ship broker, who is to be found in every important seaboard city and who can communicate by cable with ship brokers in all parts of the world, the shipper will readily obtain the services of such a vessel as he desires, and at the time and place that he wants it. The shipper and the broker representing the owner of the vessel enter into a contract set forth in a charter "party" whereby the owner of the vessel agrees to transport the shipper's freight from a designated city or from a port within a "range" to a stated destination or to a port within a specified range of seaboard cities. The shipper may desire to specify the port of lading after the charter party is signed, and he may wish to

select the particular port for discharge of cargo after the vessel has started on its voyage. Vessels, especially passenger ships, may also be chartered for round trip voyages.

Trip charter parties are of two general kinds, the "gross form" and the "net form." The gross form charter stipulates that the owner of the vessel shall bear the expenses of loading and discharging the cargo, and also bear the port charges and operating expenses. When the shipper pays for the stevedoring and other expenses of loading and discharging, the charter party is of the net form. However, the stipulation of charters may vary widely. Sometimes, for example, the shipper will pay for loading and the vessel owner for discharging.

Trip charter rates are determined by numerous factors. The charterer or shipper usually pays a designated rate per ton or unit of the cargo shipped and upon the number of tons that the vessel can carry of the commodity in question. The actual rate will depend upon the scarcity or abundance of available vessels, and upon such minor stipulations as the number of "lay" or free days within which the vessel is to be loaded or discharged without the payment of demurrage by the charterer to cover the extra expense that the vessel owner must bear if there be a loss of time.

The time charter party stipulates the terms under which a charterer obtains the services or the use of a vessel for a designated period of time, three months, six months or a year. The logical basis for the charter rate is a charge per month per ton of the vessel's carrying capacity, i.e., its dead weight tonnage. In case of a passenger or special type of vessel the gross or net, instead of the dead-weight, tonnage may be taken. The charterer is usually, though not always, a company operating a line of vessels. By means of time chartering, such a company can expand or contract the tonnage of its fleet with the increase or decrease of traffic.

There are two general kinds of time charters, one of which is the "bare boat" charter. The bare-boat charter gives the charterer possession of a vessel without crew. He meets all the expenses of operating and maintaining the vessel for the period of the lease, he provides the crew and the fuel, and meets all port and terminal charges and operating expenses. The ordinary and

more usual time charter provides that the owner of the vessel shall furnish the crew, pay their wages and feed them, and shall furnish the fuel, while the charterer bears all the port, terminal and cargo handling charges. However, the provisions of time charters, as do those of trip charters, vary widely to meet the conditions of different trades and the wishes of charterers.

MAKING OF LINE FREIGHT RATES THE FACTORS AFFECTING THEM

The making of ocean line rates is not a scientific process, they are in all ordinary times the result of a number of business influences or forces. The prevalence of ocean conferences makes it clear that regular line rates are not the result of unrestricted competition. It is equally clear that the occasional arbitrary advance or maintenance of a rate does not afford evidence that the conference lines have an absolute monopoly power over line rates. Many influences not fully controlled by ocean conferences need to be considered when the lines endeavor to fix their rates at "what the traffic will bear."

Some competition between conference steamship lines persists even though they cooperate in the making of their charges. The conferences control and restrict rather than eliminate competition. Even when the absolute rates are fixed in conference committee meetings, the effects of competition are not wholly avoided, for the wishes of the weak and strong conference lines need to be heeded. Their competition is changed and its severity modified, but its life is not extinguished. On some routes, moreover, certain independent lines continue to operate, although the competition maintained by them is limited.

A distinction needs to be made between the regular cargo rates of ocean lines and their so called "berth cargo" rates. The berth cargo of lines consists mainly of commodities such as grain or case oil which line vessels regularly carry to fill surplus cargo spaces not taken up by traffic which they carry at regular line rates. Berth cargo rates are frequently reduced to a low level at large ports, such as New York, which are served by many regular lines. At times such cargoes are carried in lieu of ballast, and their rates are regarded as profitable so long as they yield anything over and above the immediate costs incurred in handling them. They are explicitly excluded, in many in-

stances, from the commodities whose actual or minimum rates are fixed in conference, or are subjected to only a modified amount of control

Although ocean liners and tramp vessels are mainly engaged in different services, the rates charged for the services of ocean lines are nevertheless influenced to some extent by tramp competition. The competition is particularly acute in the fixing of berth cargo rates, because the commodities carried by lines as berth cargoes are especially adapted to transportation in shipload lots. At large ports, for example, where many lines congregate, the lines sometimes obtain most of the grain cargoes, but at rates that are in a large measure influenced by tramp competition.

The general cargo rates of the lines are less subject to tramp competition, but even they are not wholly free from its influence. Shippers of iron and steel manufactures, and other bulky goods that may be shipped either in shipload lots or as general cargo, frequently have a choice of services, and should the line rates on general cargo that is usually handled almost exclusively by the lines become unreasonable as compared with the cost of chartering vessels, tramp competition may at any time become an active factor. As has been stated by Mr P A S Franklin, president of the International Mercantile Marine Company, the tramp service is under such conditions available both to small and large shippers.¹

Neither the large nor the small shipper is ever at the mercy of the steamship lines if rates advance to a point which may be thought to be unreasonable. If the rates exceed or even approximate the rates at which tramp steamers can be chartered, large shippers of special commodities immediately protect themselves by the employment of tramps for the transportation of their shipments, and small individual shippers, who cannot accumulate merchandise in quantities sufficient to justify the chartering of tramp steamers, are at such times served by chartering brokers, who are always ready, when rates by the regular lines advance to such a point that a profit can be made by chartering, to lay chartered steamers on the berth, themselves accumulating

¹ Annals of the American Academy of Political and Social Science, Vol LV, p 161

the shipments of numerous small merchants, who by this means can always protect themselves against oppression

When a tramp vessel is placed on the berth by a ship broker or speculator as here stated, it is, of course, not engaged in the tramp service as that service is ordinarily conducted and understood, the tramp is temporarily engaged as a general carrier. It is, however, from among the world's fleet of tramps that such vessels are chartered.

Ocean line rates are further influenced by the indirect competition known as "market" or "commercial" competition. Many American exports to non-European markets, for example, need to be marketed in competition with similar goods offered by European exporters. This obliges the lines serving the exporters of the United States to maintain a degree of parity between their rates and those in effect from Europe to a given competitive market. The effect of this competition is similar to the well known force of industrial and commercial competition upon railroad charges, but differs in that it is more international in scope.

Market competition also exerts an influence upon the relative ocean rates from and to ports on the different seaboard of the United States. As explained in the following chapter there are special railroad rates definitely adjusted among the north Atlantic, south Atlantic and Gulf seaboard of the United States, applying on export and import traffic. The ocean steamship lines also have a problem of adjusting rates to and from foreign countries via these several seaboard. From 1920 to 1925, the three American coastwise steamship conferences, the North Atlantic, the South Atlantic, and the Gulf, through a tripartite conference, fixed the transatlantic rates to Europe, applying at Gulf ports, at 15 cents per 100 pounds or five cents per cubic foot above the rates applying at the north Atlantic ports, the differentials against the Atlantic ports south of Norfolk being one-half those to and from Gulf ports. In 1920, the United States Shipping Board held this arrangement to be "unfair as between carriers and detrimental to the commerce of the United States." The Shipping Board's decision left each conference free to make rates for its lines without being bound by an interseaboard agreement as to differentials. As a result of competition, common rates to Europe apply on most traffic at north Atlantic ports, there

are also common rates at south Atlantic ports and common rates at Gulf ports, but the level of rates at south Atlantic ports is higher than at the north Atlantic, and the rates at Gulf ports are somewhat above those at the south Atlantic

The ports of the Pacific seaboard of the United States have also been equalized substantially as to their ocean-line rates, but the extent of this equalization is not so universal as that afforded by the export rates published by the transcontinental railroads. The Pacific seaboard as a whole is on a lower ocean-rate basis than the eastern seaboard in all Pacific trades in which the steamship lines and transcontinental railroads serving them can hope to compete for export and import traffic originating at or destined to interior points within the United States. This general rate adjustment prevails until distant Oriental ports such as Singapore and Calcutta are reached.

Ocean as well as railroad carriers are concerned with the equalization of rival ports or with the establishment of equitable port adjustments and the rates of both are influenced by port rivalry. To accomplish this, the railroads have made a more general attempt than have the ocean carriers in their export and import rail tariffs and their established port differentials, but the ocean steamship lines have not been able to disregard the competition between rival ports and seaboard.

The rate parity maintained between competitive countries and rival ports is by no means absolute. Yet a relationship is maintained, and this is ordinarily true even when the services available to American shippers are offered under foreign flags. Flagrant discriminations, however, have occurred at times, and these, although they are exceptional, have contributed their share to the desire for a larger American deep-sea marine and for a measure of public regulation. Unfair discriminations are less likely to occur in the future, because the government has the power to correct any rate that is unjustly discriminatory between shippers or ports or against "exporters of the United States as compared with their foreign competitors."

Although ocean-line rates are largely determined in conferences in accordance with the commercial requirements of international commerce and the limits set by direct and indirect competition, various additional rate factors are instrumental. The

value of the commodities carried is considered in determining what the traffic will bear. Particularly is this the case when different rates are assigned to different commodities, or when an ocean line adopts a freight classification.

(Ocean line rates are also influenced by differences in the value of the services rendered. Slower or indirect lines are frequently accorded differentials because the value of their service is less than that of faster or more direct lines, and unless their rates are lower they would, in years of normal shipping, fail to obtain their proportionate share of the traffic. The value of the service likewise determines the maximum above which neither individual class and commodity rates nor ocean line rates as a whole can be permanently maintained.

(The relative supply of, and demand for, tonnage and cargoes influence line rates somewhat.) Ocean conferences tend to prevent the constant rate fluctuations which would occur if supply and demand were the sole considerations, but the conference lines are not loath to increase their charges in case a shortage of tonnage should occur. Neither could they maintain their line rates at a high level throughout a long period of insufficient shipping and surplus tonnage. Conditions of supply and demand frequently cause wide variations in opposite directions, over a particular route.

< It is clear that line rates are fixed primarily at what the traffic will bear, i.e., in accordance with the commercial and competitive forces mentioned above, yet the cost of the services rendered by the lines is also a rate factor. Cost of the service influences line rates in two general ways. First, it determines the minimum below which the general level of line rates on a given route may not long be maintained. The lines do not establish their rates by computing their total costs and adding to this an amount to yield a profit; they resist any reduction that causes rates to be lowered to the cost of the service, and they advance their rates in case their costs rise to a higher level, and commercial conditions do not prevent. Should the costs of a particular line, however, differ widely from those of competitive lines or other lines performing similar services, it may at times find itself unable to maintain its rates at a profitable level.

β The second way in which the cost of service influences line

rates has to do with the making of the rates on particular commodities, as distinct from the general level of all line rates. Particular rates are seldom based upon the total cost of service chargeable to an individual commodity on a cost accounting basis. Should special expenses of any kind, however, arise in connection with a particular article, it may be obliged to pay a higher rate than other commodities, provided always that commercial conditions do not prevent such action. In case transshipment costs are incurred, moreover, or special expenses arise in handling a consignment in port, the special amounts are, in many instances, added to the line rates in the freight bill that is submitted for payment. The extent to which particular rates are influenced by the cost of service depends in a large measure upon whether the commodity in question is relatively free from or subject to competition.

(Although distance or the length of an ocean voyage is a cost-of-service factor, it is not controlling.) The rates on commodities, the movement of which is not determined by active commercial competition or competition between ocean carriers, are gauged generally, although not precisely, in accordance with distance. On the other hand, the rates on traffic that is more subject to commercial or market competition are frequently blanketed over many ports, regardless of relative distances. Differences in the volume of inbound or outbound traffic, or in the relative ability of different trades to bear a higher or lower rate, may cause distance discrepancies involving hundreds and even thousands of miles. Such rate differences cannot be taken at their face value, for they may at times be due to differences in the quality or amount of service performed by the various lines. They are usually traceable, however, to the fundamental practice of making ocean rates at what the traffic will bear. Commercial expediency rather than the cost of the service has been the ocean rate-makers' guide.

The brief description, given earlier in this chapter, of the making of rates by coastwise and inland waterway carriers engaged in the domestic commerce of the United States, indicates that the rates of those carriers, like those in the overseas trades, are determined usually by competitive factors and are fixed at what the traffic will bear. The competition among ocean lines in

the foreign trade is among carriers whose rates are not fixed by the government and whose services are subject to a modicum of public regulation. The rates also of water carriers in the domestic commerce of the United States are not fixed by the government and there is competition of such lines with each other, especially among coastwise and intercoastal lines, but the major competition of domestic water carriers is with the railroads whose rates are fixed and services are regulated by the government. The carriers by water are quite free to fix rates that are somewhat lower than the government controlled railroad charges and thus to fix rates that will attract traffic to the water routes. The only effective limitation upon this competition by the water lines is that their rates as a whole over a period of time must yield revenues somewhat in excess of operating expenses and fixed charges. The competition of railroads with each other is definitely and largely limited by government regulation, while for the most part the competition between rail and water carriers is unregulated. It may be called economic warfare.

FACTORS AFFECTING OCEAN CHARTER RATES

To the foregoing discussion of charter rates it is necessary to add but a brief statement concerning the factors affecting such rates.

The units upon which trip and time charter rates are based, as has been stated, are cargo tonnage in the former case and dead-weight or other form of vessel tonnage in the latter, and it has also been noted that it is customary, when a tramp is chartered on a time charter party in the foreign trade, for the charterer to provide the fuel and pay all port and terminal charges other than those incurred in connection with the manning of the vessels. To this extent, cost of service is a consideration in determining the rates agreed upon when different types of charters are chosen or signed.

The influences determining ocean charter rates differ from those mentioned in connection with line rates chiefly in that they are more competitive and fluctuate freely with the supply of tramp tonnage and demand for the same. No prices could be more competitive than charter rates, they fluctuate with every slight change in the ratio of traffic to ships. There is a world-

wide competition among vessel owners to secure desirable cargo shipments—a competition that is made possible by means of ship brokers who are to be found in all large ports, and who are, by means of the network of telegraph and cable lines that bind together all commercial centers, kept in touch with each other and with the shippers having cargoes for transportation. When bidding for cargoes of grain, case oil or other bulky commodities that are acceptable to lines either as berth or general cargoes, the competition between tramps, moreover, is supplemented by active line competition. Charter rates may change many times in the course of a single day at any large port. Those on grain cargoes may fluctuate as freely as the price of grain. They are, in fact, regularly quoted on the floors of the great grain exchanges.

Unlike ocean-line rates, charter rates are not made cooperatively by a limited number of conference committees. They are the result of bidding or bargaining between vessel owners or their brokers and shippers or other charterers. Organized grain, produce, or maritime exchanges may facilitate the bargaining but it remains genuinely competitive in character. Neither conference agreements nor government regulation can impose any real limitation upon this form of competition.

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CHAPTER XXVI

EXPORT AND IMPORT RAILROAD RATES AT UNITED STATES PORTS THEIR RELATION TO OCEAN SERVICES AND RATES

Goods exported from inland points within the United States to foreign countries other than Canada and Mexico are shipped long distances partly by rail and partly by ocean. Similarly imports to interior destinations within the United States are transported by ocean and rail lines over long routes. From and to the important inland centers, such as Chicago, the Twin Cities, St. Louis, Kansas City and scores of other places, there are many through routes and numerous seaboard gateways by which exports and imports may be shipped. There are many routes via each of the seaboard sections of the United States, and the ports in the north Atlantic section, the south Atlantic district, the Gulf segment, the southern, central and northern Pacific seaboard districts of the United States are actively competitive with each other for as large a share as can be obtained of the country's foreign trade. The ocean lines connecting these rival ports with foreign countries, are in competition with each other, each line seeking to build up the traffic of the port or ports it serves. Likewise the railroads connecting the interior of the United States with the north Atlantic, south Atlantic, Gulf and Pacific seaboard are rivals, each working to promote the movement of imports and exports via the seaboard and ports it serves.

This competition of railway lines with each other, of the steamship lines serving rival seaboard, and of the seaports with one another has resulted in special railroad rates whose general purpose is to enable import and export traffic to move inbound and outbound through competing seaboard gateways under conditions as nearly equal as practicable as regards through rates and services. The special railroad rates on this traffic have been determined in part by the rates of the ocean lines serving the different seaboard, the railroad charge being part of a combined rail-

ocean or ocean-rail rate between some point within the United States and a foreign country. It is the through route and combined rate, the relative advantages and the relative rates by alternative through routes, that interest the shipper and consignee. There are other factors than the combined ocean and rail rate that determine the relative expense and desirability of competing routes, but the combined rate is the most important determinant and the successful operation of ocean lines to rival seaboards depends upon the policy followed by the railroads as well as the ocean carrier in making rates.

In this volume upon transportation by water, the export and import rates of American railroads require such consideration as will show their connection with the services and charges of ocean carriers. Moreover, as will be explained, Congress has endeavored, by legislation that has been found to be unsound and impracticable, to promote American flag shipping by limiting the special import and export rates on American railroads to traffic brought to or taken from the United States in vessels of United States registry.

It has sometimes been assumed, and quite naturally, that the lower rates granted by the railroads on exports and imports than on like goods moving only in domestic trade were established to promote foreign trade. As a matter of fact, however, the main purpose of these special rates has been to bring about such a differential adjustment of rates applying on traffic through the ports of the several seaboards as will equalize, so far as possible, the competitive advantages of the rival seaboards, ports and routes. Moreover, the lower and differential railroad rates on imports, while they may have been of assistance to the import trade in some commodities, have not been made for the purpose of offsetting or neutralizing customs duties. Indeed, no relationship has been shown between the level of railroad rates on imports and the tariff duties upon such imports. Some of the widest differences between the railroad rates on imports and on like goods of domestic origin have been made for commodities upon which there are no customs duties.¹

¹ For a fuller discussion of this consult "Preferential Transportation Rates and Their Relation to Import and Export Trade of the United States," a report by the United States Tariff Commission, Washington, D. C., 1922. The report was prepared by E. R. Johnson and G. G. Huebner.

PROBLEMS INVOLVED IN FIXING IMPORT AND EXPORT RAILROAD RATES

The fact that the general purpose of making special railroad export and import rates is to distribute among the several seaboard of the United States the trade which the cities in the interior have with foreign countries and to enable the ports on the rival seaboard and the ocean lines serving them to participate in that trade under favorable conditions will be shown by stating briefly the methods and principles followed in fixing railroad rates on goods exported and imported

There are two general adjustments sought to be made in deciding upon special rates upon imports and exports different from those applying upon similar commodities of domestic origin and destination. One problem is created by the competition of ports upon the same seaboard, such as those on the Gulf seaboard of the United States, or the north Atlantic or the Pacific seaboard. Each of the several cities on a given seaboard desires to have its share of the foreign trade and seeks a rate adjustment that seems fair.

At New York, which is the greatest of all American ports, the railroad rates have, until recently, and with few exceptions, been the same on imports and exports as on domestic traffic. As is explained later, this adjustment has recently been modified. For New England and at Boston, the rail rates on domestic traffic to and from the Middle West are differentials above those at New York, but on imports and exports Boston has the same rates as New York has. North Atlantic seaboard cities south of New York have had rates on export traffic two cents per hundred pounds for Philadelphia and three cents for Baltimore and Norfolk lower than those applying at New York. The import rates via Philadelphia were six cents per hundred pounds, and via Baltimore and Norfolk eight cents, less than via New York on first and second classes, and two and three cents per hundred pounds on the several classes below second.

There is a different adjustment as among the ports on the Gulf seaboard. New Orleans is the key port and the other Gulf ports, Pensacola, Mobile, Gulfport (Mississippi), the Sabine Ports, Galveston and Houston, "have identical import and export rates to and from points within the territory roughly bounded on the

east by Cincinnati and on the west by Kansas City''² By this is meant that the Gulf ports have common rates on imports and exports to and from Chicago, and have other, but common, rates to and from Cincinnati and other interior traffic centers It does not mean that common rates are blanketed over the upper Mississippi Valley section

At the Pacific coast ports of the United States, the railroad rates on exports to and imports from transpacific countries are generally the same at the northern and southern ports, but the territorial groups within the United States from and to which the rail rates apply are not identical for California ports and for those farther north To a large extent the American Pacific coast import and export rates are blanketed or uniform over the entire United States east of Montana, Idaho, Utah and Arizona, but for some commodities the rates eastbound and, more frequently, westbound, are higher to and from the northeastern part of the United States than to and from the Middle West, and are higher to and from the southeastern states than to and from the north eastern section³

The other and major problem to be solved in fixing the export and import rail rates is to determine the relation of rates to and from the competitive seaboards—to decide what differentials below the rates at the north Atlantic ports of the United States on traffic to and from Europe and to and from Africa and western Asia shall be applied in fixing the rates at the Atlantic ports south of Norfolk and at the Gulf ports Likewise it is necessary to have such an adjustment of rates on traffic to and from the Pacific ports of Asia and Australasia that the Atlantic and Gulf ports of the United States and the vessel lines serving them, as well as the Pacific coast ports and lines, may participate in the trade and traffic

The competition of the seaboard sections with each other especially for the foreign commerce of the states in the valleys of the Ohio, Missouri, and Upper Mississippi Rivers is keen and persistent The Gulf ports of the United States, the railroad lines to

² The Port of New Orleans, Louisiana (1932), Port Series No 5, pp 156 and 198 Prepared by War Department Corps of Engineers and the United States Shipping Board

³ The Port of Seattle, Washington (1932), Port Series No 7, Part I, pp 181 187

them and the steamship lines serving them, are ever active rivals of the North Atlantic ports and their rail and ocean transportation allies. The Atlantic ports south of Norfolk and their carriers also press their claim for a share of the trade.

A brief account of the long struggle to make and maintain a satisfactory differential adjustment of the import and export rates as between the south Atlantic and north Atlantic ports and especially as between the Gulf gateways and those of the North Atlantic will indicate how complicated is the problem of rate-making. The interested parties having been unable to stabilize the situation, the Interstate Commerce Commission has from time to time been called upon to settle controversies and to decide what the rail rates shall be. The United States Shipping Board has been called upon to decide whether the ocean rates applying from the three seaboard sections were relatively just, and, as would be inevitable, the steamship conferences of which the North Atlantic lines are members and the conferences including the Gulf lines have each endeavored to secure for themselves as favorable an adjustment of ocean rates as possible.

THE ADJUSTMENT OF EXPORT AND IMPORT RATES

Export and import rates were somewhat changed by the decision of the Interstate Commerce Commission, December 3, 1934, in *Export and Import Rates To and From Southern Ports*. In general, the rates before the change was made were as follows:

1. The relation of export and import rates to rates on domestic traffic at the north Atlantic ports were determined by action taken January 3, 1932, by the eastern rail lines, with the approval of the Interstate Commerce Commission. The action taken on that date and the reason for it are explained as follows by the Commission's examiner who had conducted the investigation of export and import rates to and from southern ports: ⁴

⁴This quotation is from the report of Examiner Harris Fleming made in 1933 in Investigation and Suspension Docket No. 3718, *Export and Import Rates To and From Southern Ports*. This investigation by the Commission followed its action in suspending the enforcement of its decision in 1930 in *Export and Import Rates To and From South Atlantic and Gulf Ports*, 169 I. C. C. 21. The Commission did not require the rail carriers to make the changes in rates called for by its 1930 decision, but postponed the date of enforcement by successive orders and the whole question was reopened for another investigation. Upon protest of numerous parties

Prior to January 3, 1932, except for specific commodity rates, import and export traffic from and to interior territory to and from north Atlantic ports moved on domestic rates. As of the date just named, a change in the import and export basis through north Atlantic ports was made by reason of the revised domestic rates, which became effective December 3, 1931, under the general eastern class rate investigation. The decision in that case had the effect of destroying the north Atlantic port differentials on domestic traffic. However, inasmuch as the proceeding did not involve import and export traffic, and since it seemed desirable to continue port differentials on traffic, it became necessary for official territory lines to establish a new system of class rates on import and export traffic preserving such differential relationships, and this was done effective January 3, 1932.

As a result of this action taken by the eastern lines, import and export all-rail class rates were made by applying to them the north Atlantic port differentials (less than the rates to and from New York) "except in those cases where such basis would make the rates from and to other ports higher than the maximum (domestic rates) fixed by the Interstate Commerce Commission

in which event the (domestic) rates to and from such other ports will govern as the basic rate, but (import and export) rates are in no case higher than the maximum (domestic) rates prescribed by the Commission from or to each port." By this arrangement the eastern rail lines now maintain import and export rates on class traffic and on many commodities between north Atlantic ports and "points generally in Territory A and points on the eastern lines in Territory B while at many points in Territories B and C they concur in rates published by the southern lines."

the Commission continued the old adjustment of the rates in question until October 3, 1932. The parties in interest later voluntarily continued the old adjustment until January 3, 1935. On December 3, 1934, the Commission decided the long pending case and made some changes in the rates, the changes to be effective January 14, 1935.

"Territory A" is the eastern part of the Central Freight Association's territory and includes the section west of Buffalo, Pittsburgh, and Wheeling, and north of the Ohio as far west as a line from Cincinnati to Indianapolis and Chicago. The remainder of Central Freight Association territory is in "Territory B" and includes the section west of Territory A, north of the Ohio River from Cincinnati to Cairo, and east of a line up the Mississippi River to St. Louis and across Illinois via Peoria to Chicago. "Territory C" is that part of Western Trunk Line Territory that is bounded on the east by Territory B, on the south by a line just south of Kansas City, Missouri, and Topeka, Kansas, and on the west by line just west of Lincoln and Omaha, Nebraska, Sioux City, Iowa, Sioux Falls, South Dakota, and

2 The export and import rates via south Atlantic and Gulf ports are based upon and are differentials under the rates through the port of New York. Specifically they may be differentials under Baltimore or Philadelphia at which cities the rates are definitely related to those through New York. The rail differentials on exports and imports from and to the central territory via south Atlantic ports are either the same as, or are definitely related to, the differential applying to rates on traffic through the Gulf ports.

Although there had long been competition of the southern United States ports, and the rail lines serving them, with the north Atlantic ports and the eastern railroads, and although that competition influenced the railroad rates to the Gulf and south Atlantic ports, and although there were many export rates in effect prior to 1919

The first through *export* rates to apply *generally* on classes and commodities from the interior territory to south Atlantic ports were established December 1, 1919, and to Gulf ports December 31, 1919. The railroads were at that time under Federal control and the rates established were authorized by the director of the division of traffic, United States Railroad Administration. From points in central territory taking 100 per cent of the New York-Chicago scale of rates referred to as "100 per cent territory" and points east thereof, the rates established by the director general, generally speaking, were the same as the rates on like traffic to New York.

The above statement which is quoted from the decision of the Interstate Commerce Commission rendered in 1930 in *Export and Import Rates To and From South Atlantic and Gulf Ports* (169 I C C 21) shows that, in general, the export rail rates from the central part of the country to the south Atlantic and Gulf ports were the same as the domestic rates to New York. Thus, the rail rates from Chicago and the Middle West to southern ports on export traffic were made lower than rates on like domestic traffic to southern ports. The rates on domestic traffic to New Orleans and other southern ports were much higher than rates on like traffic to New York, being in some instances a third higher. The relationship established in 1919 by the director gen-

Minneapolis and Duluth, Minnesota. The northern boundary of Territory C is Lake Superior,

eral of railroads between rates on exports via south Atlantic and Gulf ports and rates via the north Atlantic ports was changed (as was also the import rate adjustment) and made somewhat more favorable to the southern ports in 1920 by a horizontal increase of 40 per cent in the rates of the eastern carriers and of $33\frac{1}{3}$ per cent in the rates of the carriers in southern territory. Subsequent changes were made in these rates, particularly by the new eastern class rate structure established by the Interstate Commerce Commission and made effective December 3, 1931, to which reference has been made.

The eastern rail lines were not satisfied with the differentials given the southern lines in 1919 and 1920, but were unable to persuade the southern roads to agree to a different adjustment, and, in 1930 the Interstate Commerce Commission, by a close vote upheld the adjustment, and the adjustment with modifications in detail was validated by the commission in finally disposing of the problem by its decision rendered December 3, 1934.

3 *Import rates* via southern ports have had a longer history than have export rates. After many years of controversy over import rates via the north Atlantic and Gulf ports, the eastern and southern rail lines in 1907 submitted their dispute to arbitration, the result of which was the Todd-Knott award which established on traffic from Europe, Asia and Africa via Gulf ports a definite schedule of differentials under the rates from New York "to points in central territory taking 100 per cent or more of the New York-Chicago scale and Cincinnati, Indianapolis and points on the Illinois Central Railroad between Effingham, Illinois, and Indianapolis." The differentials were 18 cents per hundred pounds on classes 1 and 2, and 12 cents on class 3, eight cents on 4th, six cents on 5th, and six cents on 6th class. The differential for the 6th class also applied to commodities taking a 6th class or lower rate. This adjustment prevailed until 1918, when the director general of railroads suspended all import rates via north Atlantic ports while allowing the import rates from the Gulf ports to remain in effect in modified form. The resulting adjustment of import rates from the competing seaboards was altered in 1920 by the horizontal increases then made in all rates, and the differentials have been altered in detail from time to time by changes in rates at one port without correspond-

ing changes in rates from other ports, but, as has been stated, the eastern carriers have not yet been able to have this adjustment very greatly altered

The general system of export and import rates via southern ports which was upheld with modifications in detail by the Interstate Commerce Commission in its decision of December 3, 1934, was described as follows by the examiner, Harris Fleming ⁶

1 From at least many points in Territory C and from points served by the *southern* lines in Territory B, *export* rates are maintained to the southern ports on class traffic and on many commodities. On class traffic and at least generally on commodities, these do not vary depending upon the ultimate (foreign) destination of the traffic. To such points in these territories, *import* rates are maintained from the southern ports,⁷ and from the Gulf ports at least many of the class rates, on traffic from Europe, Africa, and the east coast of South America are lower than on traffic from other foreign countries.

2 On class traffic, the *eastern* lines participate as originating carriers in *export* rates to various southern ports from Territory A and points on their lines in Territory B and those rates, at least from Territory A, do not vary depending upon the ultimate destination of the traffic. However, on *import* traffic, they maintain class rates from those (the north Atlantic) ports to none of such interior points except to points in Territory B served both by them and the southern lines and at least many of these rates vary depending upon the origin of the traffic. They (the eastern lines) maintain *export and import rates on various commodities* between those (north Atlantic) ports, on the one hand, and on the other hand, points in Territory A, also numerous points on their lines in Territory B, some of which vary depending upon the foreign origin or destination of the traffic.

The Commission in its decision of December 3, 1934, in general, upheld the southern railroad lines, as against the eastern trunk lines, and permitted the southern lines to continue to maintain import and export rates at south Atlantic and Gulf ports, as they had before, on a level lower than the level at north Atlantic ports. Numerous modifications were, however, made in the rates proposed by the southern lines. Some modifications were required because of the long and short haul clause of the Interstate Com-

⁶ From p 13 of the report by Harris Fleming, Examiner Investigation and Suspension Docket No 3718 Import and Export Rates To and From Southern Ports

⁷ The rates to and from Florida points are subject to special exceptions that are not presented here

merce Act, although numerous exemptions from the requirements of the clause were permitted. The rates fixed on import and export traffic by the southern lines were not to be so low that they would yield less than five mills per ton mile "where the carload minimum rate is 40,000 pounds or more, and 10 cents per car mile where the carload minimum weight is less than 40,000 pounds." With these and other specifications and exceptions that need not be recited, the rates that had been previously approved by the Commission and which, in general, were those desired by the southern lines, were found justified and the carriers were ordered to make the required changes in rates by January 14, 1935.

The commerce of the United States with transpacific countries is divided between the Atlantic-Gulf and Pacific seaboard cities. New York and to a less extent eastern seaboard cities have always had ocean lines to the Orient and Australia, and the opening of the Panama Canal has intensified the competition of the two seaboard cities for the trade with the Far East. In general, the through rates between the central part of the United States and the Orient and Australia must be such as to enable shipments to be made with approximately the same expense either by Atlantic, Gulf or Pacific gateways. The rail carriers to and from the Pacific ports of the United States have a much longer haul than do the rail lines to the Atlantic ports. This explains why the Pacific rail lines blanket their rates over such wide territories. If traffic moves from Chicago to the Orient by way of New York, the rail portion of the rail-ocean route is relatively short as compared with the rail part of a through route via San Francisco, but the ocean part of the through route via New York is much longer and the ocean rate must be higher. This makes it possible for through rail-ocean routes via Atlantic and Pacific ports to be put on a competitive basis.

Steamship lines as well as the railroads are eager to develop traffic via the ports they serve and are thus interested in establishing and maintaining satisfactory rate relationships among competing ports. Ocean rates, however, are difficult to stabilize, they fluctuate in spite of the restraining efforts of the ocean line conferences, and their fluctuations affect the adjustment of through import and export ocean-rail and rail-ocean rates by

competing seaboards Complete stabilization of such rates by rival through routes is not possible

Moreover, there are factors other than the through freight rates that affect the costs of shipment of imports or exports by alternate routes and seaports Besides the steamship and railroad rates there may be, and for most shipments there will be, cartage or drayage charges, lighterage charges, marine insurance premiums, and wharfage dues to be paid, and these will differ for different routes and ports Efforts are made by business organizations of the interested ports and by the steamship and rail lines concerned, so to equalize the charges other than freight rates at the several ports as to maintain the desired relationship between the through routes and rival seaboards However, the equalization can be only approximately complete, and the relationship will require frequent readjustment Competition is inevitably a disturbing force, for that reason, when it is regulated and intelligently directed it makes progress possible Change is essential to betterment

That some ports are superior to others goes without saying Through routes may not only be shorter by some gateways than by others, but ports may differ as to the transportation services and facilities they provide Ocean sailings from the less advantageously located and less fully equipped ports may be fewer and less regular than from the ports of first rank, and the "differential" ports may be served by smaller vessels To overcome these handicaps the rail lines to the ports of second rank must charge import and export rates lower than the corresponding rates via the major or key ports by such differentials as will cause traffic to move by way of the less favorably located and equipped gateways Reference has been made to the rail "differentials" of long standing applying to and from the north Atlantic seaports Presumably the Gulf ports are now, by the decision rendered December 8, 1934, on a general rate parity as regards the import and export traffic to and from Territory "B" as above defined

This seemingly detailed, although in fact brief and rather general account of import and export railroad rates and their relation to interport and ocean line competition describes a rate situation that has apparently been stabilized by the Interstate Com-

merce Commission as a result of the investigation it has made and the decision it has rendered

THE MERCHANT MARINE ACT OF 1920 AND IMPORT AND EXPORT
RATES

A misdirected and unsuccessful effort was made in 1920 to use the special import and export railroad rates as a means of increasing the traffic of American flag ships. The Merchant Marine Act of 1920 contains a section intended to promote the development of the American merchant marine through the restriction of inland rail import and export rates to goods imported or exported in vessels documented under the laws of the United States. Section 28 of the Act provides that whenever the United States Shipping Board is of the opinion that adequate shipping facilities to or from any port in the United States, and the possessions or dependencies of the United States or foreign countries are not afforded by vessels documented under the laws of the United States, the Shipping Board shall certify this fact to the Interstate Commerce Commission. The Commission by order may suspend the operation of the provisions of the section of the Act for the length of time and under conditions and terms provided for in the order or supplemental orders. The suspension of the provision may be terminated by order of the Interstate Commerce Commission whenever the Shipping Board certifies to the Commission that adequate shipping facilities under United States documentation are available at specified ports.

The provision of the Act was suspended in 1920. In 1924, the Shipping Board certified to the Interstate Commerce Commission that the operation of Section 28 of the Act should not be further suspended and certified that adequate shipping facilities were available at a number of designated ports. Formal hearings were held before the Shipping Board and the Interstate Commerce Commission. Testimony at these hearings, and before a committee of Congress, on a bill to suspend the application of the section, indicated that adequate shipping facilities under the American flag were not available and that importers and exporters were almost unanimously against the lifting of the suspension. The Shipping Board then withdrew its resolution approving the lifting of the suspension. The Chamber of Commerce of the

United States in 1924 unanimously adopted a resolution advocating the suspension of the effective date of Section 28, because of the grave disturbances and hazards its enforcement would raise in the production, manufacturing, commercial, railroad, and ocean shipping industries in the United States. The Interstate Commerce Commission in 1924 recommended that the section be repealed. Congress has not repealed Section 28 of the Merchant Marine Act of 1920, but the section has not been enforced. It remains a dead letter.

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PART VI
GOVERNMENT AID AND REGULATION
SHIPPING POLICY

CHAPTER XXVII

NAVIGATION LAWS OF THE UNITED STATES

THE general navigation laws of the United States are many and cover a wide range of subjects. They may, however, be divided into a limited number of important classes.

NAVIGATION LAWS CLASSIFIED

One group of laws requires American vessels of more than five net tons, excepting harbor craft and inland vessels not propelled by sails or motive power of their own, to be documented under the flag of the United States.¹ Vessels engaged in the foreign trade, in the whale fisheries and in the trade with the Philippine Islands, Guam and Tutuila are registered with the Bureau of Navigation and Steamboat Inspection, those of 20 tons gross or upward engaged in the coasting and inland trades or fisheries are enrolled, and those of five tons but less than 20 tons gross engaged in the coastwise, inland, and fishing trades are licensed.

As a means of fostering ship-building and ship operation and for other reasons, it has long been the custom of most maritime nations to reserve the coasting trade to vessels constructed in domestic shipyards. Aside from the special arrangements temporarily provided for as an emergency measure in an Act of

¹ The following vessels are not required to be documented: (1) Boats or lighters not masted or if masted and not decked, employed in the harbor of any town or city, and not carrying passengers. (2) Canal boats or barges, or boats employed wholly upon canals or on the internal waters of a state, without sail or internal motive power of their own and not engaged in trade with contiguous foreign territory and not carrying passengers. (3) Barges or boats without sail or internal motive power of their own, plying on inland rivers or lakes of the United States, not engaged in trade with contiguous foreign territory and not carrying passengers. (4) Vessels plying upon waters wholly within the limits of a state having no outlet into a river or lake on which commerce with foreign nations or among the states can be carried on. (5) Vessels of less than 5 net tons. (6) Pleasure vessels measuring under 16 gross tons may not be licensed, except under special instructions from the Bureau of Navigation and Steamboat Inspection of the Department of Commerce.

October 6, 1917, foreign built vessels have, since 1817, been excluded from the coastwise trade of the United States. The Merchant Marine Act of 1920 repealed the Act of 1917 and again restricted the coastwise trade to American-built vessels subject to the proviso that "foreign-built vessels admitted to American registry, owned on February 1, 1920, by persons citizens of the United States, and all foreign-built vessels owned by the United States at the time of the enactment of this Act, when sold and owned by persons, citizens of the United States, may engage in the coastwise trade so long as they continue in such ownership, subject to the rules and regulations of such trade." The Act of 1920 further provides that the president may extend the application of those restrictions to the Philippine Islands and all other insular possessions when adequate service is available by American flag vessels.²

A special provision, contained in Section 18 of the Merchant Marine Act, provides that vessels purchased, chartered, or leased from the Shipping Board may be operated only under American registry, enrollment, or license, unless otherwise authorized by the Board, and that it is unlawful to sell, transfer or mortgage, or, except under regulations prescribed by the Board, to charter any vessel purchased from the Board or documented under the laws of the United States to any person not a citizen of the United States, or to put the same under a foreign registry or flag, without first obtaining the Board's approval.

Before 1912, registry under the American flag was not open to foreign-built vessels. In this respect, the laws of the United States were at variance with those of Great Britain and Germany which had followed a contrary course for many years, admitting to registry, with a few exceptions, vessels constructed in shipyards outside those countries. The Panama Canal Act of August 24, 1912, applied the policy of free shipping in the foreign trade, excluding, however, all foreign-built vessels over five years old and any not wholly owned by citizens of the United States or by domestic corporations, the president or managing directors of which are American citizens. This policy of permitting foreign-built but American-owned vessels to register under the flag of the United States in the foreign trade was further extended in the

² Section 21.

Emergency Registry Act of August 18, 1914, which removed the former limitations concerning the age of foreign-built vessels, and empowered the President of the United States, in his discretion, to "suspend by order so far and for such length of time as he may deem desirable the provision of law prescribing that all watch officers of vessels of the United States, registered for foreign trade, shall be citizens of the United States," and likewise to suspend the Federal requirements concerning survey, inspection, and measurement of foreign-built vessels admitted to American registry

Closely allied to the statutes regarding documenting of vessels is another class of laws, requiring the official measurement of documented craft. All registered, enrolled, and licensed vessels must be measured in accordance with the statutes and rules of the United States as interpreted and enforced by the Bureau of Navigation and Steamboat Inspection. The actual work of measurement is conducted by the admeasurers or surveyors of the United States Customs Service who are located at the principal ports throughout the country. Measurement is prerequisite to the granting of a certificate of registry and makes available such pertinent information as length, breadth, depth, tonnage,³ number of decks and masts, and such other particulars as are descriptive of the identity of the vessel. All vessels navigating the Panama Canal are required to be measured in accordance with the measurement rules for the Panama Canal that were promulgated by the president, November 21, 1913.

A third class of statutes includes the tonnage tax laws of the United States. Upon entering an American port from any foreign port in North or Central America, the Bahamas, the Bermudas or West Indies, or countries of South America, bordering on the Caribbean Sea, the vessels, whether American or foreign, are required to pay a Federal tonnage tax of two cents per net-registered ton, not exceeding a total of 10 cents per ton annually. All vessels entering from other foreign countries are required to pay a tonnage tax of six cents per net ton, not exceeding 30 cents per ton annually, in both instances time is to be computed from the first payment. Vessels engaged in the coastwise trade

³ Chap. 11 contains a description of the methods followed to determine vessel tonnages.

have, for many years, been exempted from the payment of tonnage taxes, and vessels entering a port of the United States, otherwise than by sea (i.e., from Canada) from a foreign port at which no tonnage taxes or equivalent dues are imposed upon American vessels are similarly exempted. During the year ending June 30, 1933, tonnage tax payments by British shipping totaled \$375,000, by American shipping \$360,000 and by Norwegian shipping \$129,000, with Japanese, German and Italian vessels making lesser payments. The total tonnage tax receipts in 1934 were \$1,483,000.

A fourth important group of navigation laws regulates the seaworthiness and provides for the inspection of vessels. Among these statutes are those that declare it to be illegal for any person knowingly to send or attempt to send an American ship to sea in such an unseaworthy condition that the life of any person is endangered thereby, those that prescribe watertight bulkheads for sea-going and Great Lakes steamers and designate the materials of which the bulkheads are to be constructed, and those which require the inspection, at least annually, of the hulls of American steamers, of sailing vessels of more than 700 tons gross that carry passengers, and of other American vessels of over 100 gross tons carrying passengers, by the inspectors of the United States Bureau of Navigation and Steamboat Inspection. The boilers and boiler apparatus of American steamers are also inspected and tested.⁴ Some of the requirements regarding inspection apply to foreign steamers, but if the inspection laws of their home country approximate those of the United States, they are exempted, except in so far as American inspectors may satisfy themselves that the condition of the foreign vessels is as stated in the certificates they hold.

The Federal laws concerning the seaworthiness and inspection of vessels, moreover, include many statutes that define the life-saving appliances, fire-fighting apparatus, and other safety appliances required on board American vessels, and those that regulate the transportation of inflammable and explosive cargoes. Life saving equipment and requirements are regulated in great detail in the Seamen's Act of March 4, 1915. In this statute Congress

⁴ This phase of inspection is now applicable to motor ships under an act of Congress, June 13, 1933.

enacted into law substantially the requirements recommended by the International Conference that met at London, November 12, 1913, to January 20, 1914. In 1910 and 1912, moreover, Congress enacted statutes prohibiting American as well as foreign passenger vessels carrying more than 50 persons from clearing without prescribed wireless telegraph apparatus and a required number of wireless operators. Congress likewise subjected the commercial and private use of radio communication on land as well as on sea to a code of needed regulations. Safety at sea is further promoted by the "international rules of the road" for the prevention of collisions and similar maritime disasters, the principal features of which are embodied in the navigation laws of the United States.

As a protection against overloading of vessels, an Act of March 2, 1929, established deep load lines for all merchant vessels of 250 gross tons or over, excepting those on the Great Lakes. Under the direction of the Secretary of Commerce, load lines are determined for all vessels, due consideration to be given to, and allowances made for, the various types of vessels and the trades in which they are engaged. Under the law the owners and masters of vessels are required to mark the hulls conspicuously and permanently. Foreign vessels are exempt from the provisions of the Act, provided equally effective regulations have been established by the countries whose flags they bear and provided those countries recognize the regulations of the United States. Of course no jurisdiction is assumed over foreign vessels operated between foreign ports but American flag vessels are required to conform to their load lines whether in home or foreign ports.

NAVIGATION LAWS PRINCIPALLY APPLICABLE TO OFFICERS AND CREWS

The laws mentioned above are concerned chiefly with the regulation of vessels. There are also many statutes that primarily affect the officers and crews of vessels. The present requirement concerning nationality of officers on American vessels is that all so-called watch officers, including the chief engineer and each assistant engineer in charge of a watch on steam vessels, must be citizens of the United States, subject only to the exemption arising from the Emergency Registry Act of August 18, 1914,

which empowered the President to suspend the provisions of the law when in his discretion the needs of foreign commerce demand it. There are no similar requirements concerning the nationality of the crews of American vessels other than those operating under the Mail Contract Act of 1891 which became practically obsolete with the enactment of the Merchant Marine Acts of 1920 and 1928.⁵ After May 22, 1932, on vessels carrying ocean mails of the United States under contract, two thirds of the crew, including all employees of the ship other than officers, must be citizens of the United States.

The number of officers required on board American vessels is determined by the inspectors of the United States Bureau of Navigation and Steamboat Inspection according to certain minimum requirements stipulated in the navigation laws, the controlling consideration being safety of navigation. In addition to the master, the number of licensed mates on vessels of 1,000 tons gross or over propelled by machinery may not be less than three unless the vessel is engaged in a voyage of less than 400 miles, in which case a minimum of two licensed mates is required, engine-driven vessels of 200 and less than 1,000 tons gross must have two licensed mates at all times, and those of 100 and less than 200 tons gross are also required to have one licensed mate for voyages of less than 24 hours' duration and two for voyages that consume a greater length of time.

The minimum number of crew on board American vessels is likewise determined by the local inspectors of the Bureau of Navigation and Steamboat Inspection. Prior to the enactment of the Seamen's Act, the number of seamen depended upon the type of the vessel, the character of the trade in which it was engaged, the kind of motive power employed, the route of the vessel and the seasons of the year. Since this statute became effective, the inspectors have been obliged also to take into account the statutory requirements that officers or able seamen shall be in charge of every life-boat, or of every pontoon life raft accommodating more than 15 persons, and that there shall be a certified life-boat man on every life-boat or raft accommodating less than 25 persons, and additional life-boat men for life-boats or rafts of larger size. The Seamen's Act, moreover, provides that during

⁵ See Chap. xiv

the first year following its passage, all sea-going or Great Lakes vessels of 100 tons gross and over shall have deck crews, at least 40 per cent of whom have a rating of able seamen, that in the second year this proportion shall rise to 45 per cent, in the third year to 50 per cent, in the fourth year to 55 per cent, and thereafter shall be at least 65 per cent

Further requirements are contained in the statutes governing the licensing of officers and in the qualifications necessary to obtain a license as prescribed by the Bureau of Navigation and Steamboat Inspection. Before granting a master's license, the inspectors are instructed to make inquiry as to the capacity, habits, character, and experience of the applicant. In addition to presentation of satisfactory evidence of knowledge, experience, and skill in cargo handling and stowage, applicants for mates' licenses must pass examinations in navigation and the management of vessels. Engineering officers are likewise required to submit satisfactory evidence of experience and knowledge of machinery. All licenses are for five years, unless suspended or revoked for intemperance, bad conduct, or other deficiencies of the one licensed, and may be renewed at the end of that time.

The Seamen's Act, moreover, introduced certain requirements concerning the qualifications of the crew. In order to obtain the rating of able seamen, certain requirements as regards physical condition, ability and experience are imposed, and those members of the crew that hold certificates as life-boat men are required to fulfil certain qualifications as to their training and knowledge concerning the handling of life-boats as well as their ability to understand orders relative to life-boat service.

The provision of the Seamen's Act that has called forth most complaint from vessel owners, particularly on the Pacific coast, is the section providing that not less than 75 per cent of the crew of vessels subject to the Act must be "able to understand any order given by an officer of such vessel." This is the language requirement which makes it difficult for American vessels, officered by men who are citizens of the United States, to employ the relatively inexpensive crews that are commonly employed on foreign vessels navigating the Pacific Ocean. Although this provision applies to foreign as well as to American vessels, its effect upon Japanese vessels is relatively slight, for the officers of

Japanese steamships are able to issue orders to oriental crews in a language that they are able to understand

Still other navigation laws are those that regulate the wages of seamen on board American vessels. In order to correct many abuses and to protect the rights of seamen, Congress has passed a comprehensive group of statutes dealing with the payment of wages in almost any situation that may arise. Seamen may demand one-half of all wages due them at every port at which the vessel loads or discharges cargo after five days from the commencement of the voyage, however, a period of five days must elapse between demands, and wages need not be paid more than once in the same port on the same entry. The payment of wages in advance is prohibited, and any allotment of wages shall be for the immediate family of the seamen. Consular officers, acting under the direction of the Secretary of State, provide for the return to the United States of destitute seamen at government expense unless satisfactory arrangements can be made for such seamen to work for their passage. Complete instructions are given to masters and consular officers for the disposal of the effects of any members of the crew who may die during the voyage.

Detailed requirements regarding shipping agreements are contained in the navigation laws of the United States. The crews of vessels bound from American to foreign ports are, with certain exceptions, shipped before United States Shipping Commissioners of the Department of Commerce. They are shipped in accordance with the terms of shipping agreements that not only specify the number and description of the crew and their respective employments, but also stipulate the nature and probable duration of the intended voyage, the port or country in which the voyage is to terminate, the time at which each seaman is to be on board the vessel to begin work, the amount of wages which he is to receive, any regulations concerning the conduct on board the vessel as to fines or other punishments for misconduct, any stipulations regarding the allotment of wages, and the scale of provisions that are to be furnished to each seaman. When a seaman is engaged by a master of an American vessel in a foreign port in which an American consul or consular agent is located, the master is obliged to obtain his sanction and hire the seaman in the presence of such officer. The procuring or detention of

crews by the aid of force, threats, misrepresentations, drugs, or intoxicating liquors is prohibited and strictly penalized

The provisions and water provided for the crew of American vessels engaged in deep-sea navigation, although specified in shipping agreements, are regulated in detail by the statute specifying the minimum quantities of water, biscuit, salt beef, salt pork, flour, canned meats, butter, etc., that are required by law. The quarters for the crew on board American vessels, except yachts, pilot boats, or vessels of less than 100 tons gross register, are fully regulated by law. The Seamen's Act of March 4, 1915, increased the minimum space per man on new steamships to 120 cubic feet with a floor area of not less than 16 square feet. Each seaman, moreover, is legally entitled to a separate berth, and not more than one berth may be placed above another. Crew spaces are required to be properly lighted, drained, heated, ventilated, and protected from the weather and sea, and, so far as practicable, to be shut off from the effluvium of cargo or bilge water, and to be kept free from cargo or stores other than the personal property of the crew. Adequate washing facilities are also required by the act of March 4, 1915.

The Seamen's Act regulates the hours of labor on sea-going and Great Lakes vessels by providing that seamen while at sea shall be divided into at least two watches, and firemen, oilers and water tenders into at least three watches. Seamen, moreover, may not be required to work alternately in the fire room and on deck. When an American vessel is in port, a day's work for seamen legally consists of nine hours, exclusive of the anchor watch, and no unnecessary work may be required on Sundays and various designated holidays.

An act of March 3, 1913, regulates the hours of officers by providing that no officer may take charge of a deck watch when leaving port unless he has had at least six hours off duty within the 12 hours immediately prior to the time of sailing. When at sea, no licensed officer may be required to remain on duty longer than 12 hours out of 24, except in case of emergency, and when in port a licensed officer may not be required to remain on duty longer than nine hours in any 24 hours. The welfare of the crew is further promoted by requirements governing prescribed hospital accommodations on board American vessels.

The laws governing the desertion of seamen have gradually been made less and less strict. Under the Seamen's Act of March 4, 1915, desertion is punishable only by forfeiture of all or any part of the effects that the deserted seaman leaves on board, and all or any part of his wages that he has earned. The navigation laws contain many provisions defining, limiting and regulating the ill treatment of crews by officers, death from negligence or misconduct, permissible and prohibited punishments, mutiny, and other acts of officers and crews.

MISCELLANEOUS NAVIGATION LAWS

Besides the navigation laws that primarily concern the vessel or the officers and crews, there are numerous miscellaneous statutes, many of which affect the shipping and traveling public as well as the vessel and its officers and crew. Such, for example, are the numerous statutory provisions regulating the entry and clearance of vessels and cargoes at American ports, those that govern the public health by requiring vessels coming from abroad to carry bills of health issued by American consuls or other approved officers, and by providing for the quarantining of vessels, the detention of crews and passengers at quarantine hospitals, and the suspension of commerce with ports that are infected with contagious disease. The statutes also provide for the enforcement of operating rules on rivers, canals or in harbors and harbor approaches, prohibit the deposit of undesirable substances in navigable waters, limit the speed of vessels and their maximum draft, prescribe anchorage grounds at specified points, and fix the official pierhead lines beyond which wharves or other harbor structures may not be erected. Other miscellaneous statutes define and punish offenses against neutrality, and criminal acts such as murder, arson, forgery of ship's papers, barratry and piracy.

Mention may also be made of the Federal statutes which empower and instruct the Bureau of Animal Industry in the Department of Agriculture to inspect vessels carrying live stock as to ventilation of the vessels, equipment, adequacy of space and facilities for food and water, and similarly to inspect the live stock and meat products that are exported to foreign countries or imported from abroad. The pure food laws, moreover,

as jointly applied by the Treasury Department and the Bureau of Chemistry in the Department of Agriculture, are of special importance to the merchants who import foreign foods and drugs

ADMINISTRATION OF THE NAVIGATION AND INSPECTION LAWS

From the facts presented in this chapter it is obvious that many executive departments and bureaus are concerned with the regulation of ocean navigation and shipping. The assistant director of the Bureau of Navigation and Steamboat Inspection in charge of the Navigation Unit, acting under the supervision of the director, has many powers and performs numerous duties that are accurately summarized as follows in a special report on *Navigation Laws* ^a issued by the Bureau of Foreign and Domestic Commerce

1 The general superintendence of the merchant marine and merchant seamen of the United States, so far as vessels and seamen are not, under existing laws, subject to any other officer of the Government

2 The decision of all questions relating to the issue of registers, enrollments, and licenses of vessels, and to the filing and preserving of these documents

3 Supervision of the laws relating to the admeasurement of vessels, the assigning of signal letters, official numbers, and all questions of interpretation growing out of the execution of the laws on these subjects

4 Questions of interpretation relating to the collection of tonnage tax.

5 Preparation annually of list of vessels of the United States merchant marine with details as to official number, signal letters, names, rig, tonnage, home port, etc

6 The preparation of annual reports to the Secretary of Commerce regarding increase of vessels. In this connection he is required to report annually "such particulars as may, in his judgment, admit of improvement or may require amendment" in the navigation laws of the United States

7 Power to change names of vessels of the United States under such restrictions as are or may be prescribed by act of Congress

Another assistant director of the Bureau of Navigation and Steamboat Inspection is at the head of the Steamboat Inspection

^a On August 1, 1932, the Bureau of Navigation and the Steamboat Inspection Service were ordered consolidated into a Bureau of Navigation and Steamboat Inspection

Unit, and under him there are eleven supervising inspectors, each of whom has general supervision of the work of inspection in an assigned district.⁷ The assistant director and the supervising inspectors constitute a board that meets at least once a year in Washington to determine the limits of the districts, and the various regulations that are necessary to enforce the work of inspection effectively. At the principal ports throughout the country are boards of local inspectors which function under the direction of the supervising inspectors. It is the local inspectors of hulls and boilers who actually perform the work of hull and boiler inspection in the 46 sub districts.

In the Department of Commerce, moreover, are the Shipping Commissioners, who are appointed by the Secretary of Commerce, and who supervise the shipping and discharge of seamen and keep a register of their names and character, provide means for securing their presence on board at the proper time, facilitate the making of apprenticeships, and "perform such other duties relating to merchant seamen or merchant ships as are or may hereafter be required by law."⁸ Before the creation of the Department of Commerce, the administration of the Navigation Laws was largely concerned with the collection of customs and was under the direction of the Secretary of the Treasury. When the Department of Commerce was created, the administration of these laws was transferred to that division of the government, but many of the employees necessary for enforcement were left in the Treasury Department where they continue to function as treasury employees under instructions from the Secretary of Commerce. Repeated recommendations for the correction of this anomalous situation were made by the former Commissioner of Navigation of the Commerce Department. Apparently an increase in administrative efficiency would result from the transfer to the Commerce Department (of the selection, appointment, and remuneration) of such custom-house employees as are engaged in marine supervisory work.

The Corps of Engineers of the War Department establishes harbor or pierhead lines and administers the laws prohibiting the

⁷ *Ibid.*

⁸ Department of Commerce, Navigation Laws (Special Agents Series, No 114), p. 155

obstruction of navigation The governor of the Panama Canal administers the Canal and the Canal Zone, as provided for in the Panama Canal Act of August 24, 1912 The Bureau of Insular Affairs is the medium through which the Secretary of War exercises general supervision over the government of the Philippine Islands Porto Rico, which was also formerly supervised by the Bureau of Insular Affairs, has been recently transferred to the Department of the Interior The Philippine Islands are, of course, primarily administered through the governmental machinery that has been provided for them by law

The Customs Service in the Treasury Department has immediate charge of the entry and clearance of vessels and cargoes, the collection of duties and tonnage taxes, the survey and inspection of cargoes, the measurement of vessels, and the bonding of imported wares The United States Coast Guard cooperates with the Customs Service in the boarding of vessels, collection and security of revenue, and in the enforcement of the customs regulations The Bureau of Public Health of the Treasury Department has charge of the marine hospital service and the establishment of quarantine The Secret Service is generally instrumental in the enforcement of the navigation and shipping laws in the same way that it is concerned with the laws governing other fields of activity

In the Department of Agriculture, are the Bureau of Animal Industry and the Bureau of Chemistry, which are concerned respectively with the inspection of exported and imported live stock, meats and meat products, and with the enforcement of the Federal food and drug laws in the foreign as well as in the domestic trade

Commanding officers of a fleet, moreover, act as consuls on the high seas and at foreign ports where no resident consuls are stationed The Navy Department, jointly with the War Department, is entrusted with the enforcement of the laws of neutrality when the government requires naval or military action for that purpose

Several agencies independent of the executive departments and bureaus just mentioned are concerned with the administration or enforcement of the navigation laws Congress enacts statutes that regulate ocean transportation and shipping, the

Senate ratifies the treaties which directly or indirectly are applicable, and Congress, through its committees, holds hearings and conducts investigations. The Federal judiciary interprets the navigation laws and provides the machinery by which those who violate the laws may be brought to trial.

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CHAPTER XXVIII

ADMINISTRATIVE AID AND REGULATION OF SHIPPING BY THE FEDERAL GOVERNMENT

THE ocean carrier and the service it performs have for centuries been the special concern of every country with seaboard and ports. As the avenue of international intercourse and the theater of naval struggles that have determined the downfall or survival of nations, the oceans are of tremendous importance to all countries having maritime boundaries. Construction and operation of a merchant marine are perhaps of greater relative importance at the present time than in past centuries. Steam and motor vessels, wireless and cable communications, and the growing interdependence of nations have complicated the problem and intensified the competitive aspect of merchant shipping throughout the world. In spite of the fact that it is not always economical for a particular nation to maintain a merchant marine when the services it performs in international trade might be performed by foreign flag ships at a saving, few countries have failed to exert every effort toward that end. In doing so they have been actuated by a desire for national prestige, trade promotion, and protection. Prestige among nations is undoubtedly enhanced by the display of the flag in various ports of the world. Benefits accruing to the foreign trade are likewise intangible, but none the less real. In principle, it cannot be denied that the interests of exporters are best served by vessels owned and operated by fellow citizens. Service is assured in a time of emergency, and protection of trade secrets and against discrimination may be had in normal times. The maintenance of a substantial national merchant marine by the United States, moreover, has done much to improve the ocean shipping service as a whole, to the distinct advantage of the country's foreign trade. The value of a merchant marine as a naval auxiliary was demonstrated during the late World War when the victory

of the allied nations was made possible by the transportation of troops and supplies in merchant ships, of the United States, Great Britain and other allied nations

Wage scales, costs of production, and standards of living vary in different parts of the world. Certain nations are thus able to operate merchant marines more cheaply than others, and the latter are compelled to grant government aid in one form or another. When such a course is followed, an effort is made to grant sufficient aid to permit profitable private operation in competition with the vessels of other nations. However, when assistance is unnecessarily liberal, other nations, regardless of costs of construction and operation, must grant aid in order that their merchant marines may continue to compete on an equal basis with those receiving generous treatment from their respective governments. As a result, many great maritime nations, including Great Britain, have been compelled to foster the shipping industry to a greater extent than would be necessary if ships of all nations were operated without subsidization.¹ The more direct forms of aid—subsidies, subventions, construction bounties, and similar methods—are discussed in a later chapter.² It is the purpose of this chapter to set forth a description of the activities of various government departments and bureaus that are mainly concerned with administrative aid and regulation to shipping in general and to the merchant marine of the United States in particular.

WAR DEPARTMENT

The policy of Federal aid to navigation and shipping has for many years included the expenditure of national funds for the improvement of rivers and harbors and for flood control. Since 1802, when the first small Federal appropriation for public piers on the Delaware River was made, a total in excess of \$1,900,000,000 has been appropriated.

The Corps of Engineers of the United States Army, acting under the Chief of Engineers and the Secretary of War, has charge of river and harbor improvements. The construction of breakwaters, the excavation of channels, the dredging of har-

¹ See Chap xxxi.

² See Chap xxxii.

bors, the establishment of harbor lines marking the limit beyond which piers and wharves may not be extended within harbors, and all other necessary engineering work connected with laying out, improving and maintaining harbors come under the Secretary of War and the United States Engineers. Whenever practicable the actual work of construction and improvement is performed under contract by private companies. In recent years, more than one-half of the annual expenditures have been made in that manner. The Corps of Engineers also makes investigations, surveys, and recommendations to Congress concerning proposed river and harbor improvements. A special board of nine engineers brings all projects together and makes definite recommendations, and so also does the Chief of Engineers. The country is divided into seven divisions for the purpose of carrying on field operations. The divisions are North Atlantic, South Atlantic, Gulf of Mexico, Pacific, Lower Mississippi Valley, Upper Mississippi Valley and Great Lakes. Each division is in charge of a division engineer and is further divided into a number of districts, each with a district engineer. Congress in the past has not always been guided solely by the merit of projected improvements. After much agitation, the present methods of appropriating and applying funds for river and harbor improvements was adopted.

DEPARTMENT OF COMMERCE

The activities of the Department of Commerce with regard to administrative aid and regulation are the most extensive of any department of the government. It would be difficult to estimate the value of the contributions made to the foreign trade of the United States by the Bureau of Foreign and Domestic Commerce and thus indirectly to American shipping, but it is necessary to omit a discussion of those governmental agencies which are not more intimately concerned with the shipping industry.³ The following are most directly related to the subject.

³ The foreign trade promotion activities of the Bureau of Foreign and Domestic Commerce are discussed in G. G. Huebner and R. L. Kramer, *Foreign Trade Principles and Practices*, Chap. vii. Those of the Bureau of Mines, Bureau of Standards, Patent Office, Bureau of the Census, Bureau of Fisheries, and the sections of the Department of Commerce, having to do with air transportation are discussed in Chap. viii of that volume.

The Bureau of Lighthouses, which, in 1910, superseded the Lighthouse Board, is in charge of a Commissioner of Lighthouses. The Bureau is concerned with the construction, illumination, inspection and superintendence of lighthouses, light-vessels, beacons, buoys, sea marks, and other installations designed to aid navigation, with the testing of apparatus and with the marking of channels leading to seaboard and Great Lakes harbors. It also publishes information concerning aids to navigation in the weekly *Notice to Mariners*, which the bureau issues jointly with the Coast and Geodetic Survey. On June 30, 1934, the number of marine aids to navigation maintained by the service, including lighthouses, lightships, buoys, beacons, marks and radio-beacons exceeded 23,000. Construction, maintenance, administration and inspection required the services of more than 5,100 employees and 58 regularly operated vessels as tenders. The field service is divided into 17 districts with a superintendent and technical staff in each district for the immediate supervision of the work.

The Coast and Geodetic Survey, organized in 1807, supplements the work of the Corps of Engineers and of the Bureau of Lighthouses by preparing charts and maps of the sea coast and of the adjacent ocean.* The maps and charts prepared by the Coast and Geodetic Survey show with great detail and accuracy the coast line, the location of shoals and bars, the depth of the sea near the shore, the location of all channels and of all lighthouses and buoys, the location and direction of all currents, and the variation of the magnetic needle, in fact, the maps aim to give the mariner all the information he needs to enter and clear ports, to navigate the coasts, and to fish on the banks off the coasts of the United States and British America. The work of the Survey is not confined to the shores of the United States, but has covered the Pacific coast from San Diego to Panama, the Hawaiian Islands, Alaska, and now includes the coast of Porto Rico and the Philippines. Surveys have also been made of parts of the coasts of Brazil, Cuba and China, the purpose of the Survey being to make, as far as possible, all the maps required

*The work of the Coast and Geodetic Survey was begun in 1816 under the direction of the Secretary of the Treasury and transferred to the Department of Commerce and Labor in 1903, where it remained until the Department of Commerce was created in 1913.

for the safety of American shipping The charts prepared by the Coast and Geodetic Survey are sold at a nominal cost

The results of the observations made by the Bureau are given publicity through various media, including sailing and harbor charts, general charts of the seaboard, *Tide Tables* and *Coast Pilots* containing sailing directions As previously stated, the Coast and Geodetic Survey is the joint publisher with the Bureau of Lighthouses of the weekly publication known as *Notice to Mariners* The value of accurate information obtainable at nominal cost is scarcely apparent to the layman Where the navigator of the past was often compelled to grope his way with little knowledge beyond the fact that the "lead" indicated a sufficient depth of water, the navigator of the present is frequently able to proceed at full speed with certain knowledge of his position disclosed by the use of echo-sounding devices in connection with accurate charts that supply him with detailed information regarding the ocean floor, tides, and currents Life and property are transported with less danger and at greater speed when precise hydrographic surveys supplant the inaccuracies of former times As an indication of the advantage taken of this valuable service, the department states that during the fiscal year 1934, more than 270,000 nautical charts and almost 33,000 tide and current tables were distributed to mariners and other interested persons

The hydrographic work of the Coast and Geodetic Survey resembles that of the Hydrographic Office of the Navy Department, but it is confined to the coasts of the United States and possessions, while the Hydrographic Office surveys foreign waters about which satisfactory information is not available Although many volumes of scientific and professional information have been issued from time to time, the weekly *Notice to Mariners* is perhaps most commonly used by the shipping industry It is published jointly with the Bureau of Lighthouses and contains a list of new and cancelled charts, notices of dangers to navigation, and changes and corrections in lights and other aids to navigators

The Hydrographic Office, which, together with the United States Naval Observatory, was established in 1842 as an independent bureau, has been a part of the Bureau of Navigation of

the Navy Department since 1866 As stated by Dr D S Hanchett ⁸

It is charged with improving the means of safe navigation, both for vessels of the Navy and of the merchant marine, by providing accurate nautical charts, sailing directions, and manuals of instruction Much of the information contained in its periodical publications is of such importance to mariners that it is "sent broadcast by radio," so that all vessels within reach may get it at once Monthly charts and weekly bulletins covering the North Atlantic, monthly charts of the North Pacific, and less frequent charts of other oceans are published These charts locate both fixed and temporary dangers to navigation, indicate the usual paths followed by storms at particular periods, the relative amounts of fog which may be met, the direction and force of prevailing winds, the direction of ocean currents, the variation of the magnetic needle, and the courses to be followed in crossing the ocean These "steamship lanes" were originally suggested by Lieutenant M F Maury, of the United States Navy, for routes between northern Europe and the United States, but until 1891 there was no agreement to follow them In that year five companies, and in 1898 all companies, concerned in transatlantic service agreed to do so The office has also played an important part in inducing the steamship lines to change their courses during ice seasons in order to avoid danger

The data for the maps and charts of the Hydrographic Office are secured in part from the captains of the vessels, who, upon arrival at an American port, report to the officials of the Hydrographic Office the location of all obstructions passed on the voyage. Reports of the outbound voyages are now being cabled back to the United States from some foreign ports The captains making voluntary reports receive free of charge such pilot charts as they may need, other persons may obtain the charts for the cost of the printing and paper In contrast with the work of the Coast and Geodetic Survey, the Hydrographic Office is concerned largely with surveys in foreign waters and on the high seas

Closely connected with the Hydrographic Office is the Naval Observatory, which publishes the *American Ephemeris and Nautical Almanac*, containing astronomical data that are useful in the navigation of vessels. The Observatory also tests the accuracy of navigation instruments and establishes standard time and differences of longitude

⁸ Johnson and Collaborators, *History of Domestic and Foreign Commerce of the United States*, II, p 252

The work of the Navigation Unit of the Bureau of Navigation and Steamboat Inspection of the Department of Commerce has been referred to in Chapter XXVII which deals with the navigation laws of the United States.⁶ This Bureau is charged with the administration of laws that govern the entrance, clearance, measurement and documentation of vessels and with the enforcement of numerous other statutes contained in the navigation laws. In addition to the enforcement of laws mainly applicable to the navigation of vessels, the Bureau, through shipping commissioners located at various ports, renders a very valuable service to seamen. The commissioners enforce the voluminous laws for the protection and welfare of American seamen, and secure proper crews for ships in need of such service. The contracts of employment between the vessel and crew are explained to the latter and complaints concerning food, quarters, and wages are settled by the commissioners. In the event of death, the effects and wages of seamen are delivered to the next of kin, assistance in obtaining indemnity for injuries is likewise made available. According to the director of the Bureau "The most important work of the shipping commissioner is arbitration of disputes between the master and men involving fines and penalties. His decision is conclusive. It affords a full hearing and provides a decision in accord with the law and the facts without expense or delay. This authority of shipping commissioners is unique in our Federal procedure and supplies in practice perhaps the most conspicuous justification of summary process to be found in our entire Federal system."⁷

Publications of the Bureau of Navigation and Steamboat Inspection include the *Annual List of Merchant Vessels* which contains the name, tonnage, speed, name of owner, and other particulars of all merchant vessels of the United States, *Navigation Laws, Rules for the Measurement of Vessels* which contains rules for the guidance of customs officers in the administration of the admeasurement laws, the full text of the laws, and

⁶ Although the Bureau of Navigation and Steamboat Inspection Service were recently combined under that title, the functions of each remain the same, and they are discussed separately here in order that their respective duties may be more apparent.

⁷ Annual Report of Secretary of Commerce for fiscal year ending June 30, 1932, p. 179.

the rules for the measurement of vessels at the Panama and Suez canals, *Radio Stations* and *Radio Service Bulletin*, the former being a list of radio stations in the United States, and the latter a monthly bulletin noting changes in the radio laws and the latest information concerning government and commercial radio stations, *Merchant Marine Statistics*, an annual volume of statistics concerning the growth of the American merchant marine and water-borne commerce, and including information pertaining to the number and nationality of American seamen. Regulations for the establishment of load lines for merchant vessels are issued from time to time as a guide in the observance of the new load line law referred to in Chapter XXVII.

Two phases of the shipping industry are under the direct supervision of the Steamboat Inspection Unit of the Bureau of Navigation and Steamboat Inspection, which was established in 1838 and transferred to the Department of Commerce and Labor in 1903.^{*} As an aid to the promotion of safety at sea, hulls, engines, boilers and life-saving equipment are inspected and both deck and engineer officers licensed. Statutes were enacted many years ago covering boiler material, construction, and inspection. As a vital as well as dangerous unit, steamship boilers are subjected to rigid inspection. The need for precaution has not lessened materially with metallurgical advancement, because working steam pressures have likewise risen rapidly. Tubes, flues, pipes, stay-bolts, and other parts of boilers and boiler attachments must conform to prescribed standards of safety. Inspection of boiler plate is sometimes made at the steel mills and there stamped for purposes of identification. The work of inspection is greatly facilitated by this method.

Similar in purpose are laws providing for the inspection of hulls, life-boats, rafts, life-preservers, boat davits, and other safety appliances. Life-saving equipment likewise may be inspected at the place of manufacture. Customarily, samples of the smaller life saving equipment such as life-preservers, are submitted for testing before inclusion as a part of the safety appliances of the ship.

^{*} When the Department of Labor was created in 1913, the Steamboat Inspection Service remained with the Department of Commerce. In 1932 it was consolidated with the Bureau of Navigation in the present Bureau of Navigation and Steamboat Inspection of the Department of Commerce.

In order that vessels subject to the navigation laws shall be officered by competent persons, representative standard examinations for licensing of officers are given by the various local boards of steamboat inspectors. Although the examinations are more or less standardized, greater uniformity in the administration of this requirement would result from a review in the central office of the examination papers and experience of applicants. Under existing circumstances, the numerous local boards act independently in passing upon the qualifications and the central office reviews only those cases which have been appealed from the action of the local boards. Although in some respects the work of this subdivision of the Commerce Department is regulatory in nature there can be no doubt of its value to shippers, travelers, and vessel operators. Minimum safety requirements, while not an aid in themselves to steamship owners, prevent less conscientious builders and operators from economizing along such lines at the expense of others to whom safety is of paramount importance regardless of cost. Similar laws safeguarding life and property are included in the maritime codes of all progressive countries. The larger passenger carrying lines seldom fail to exceed the safety requirements of the most exacting country.

The more important duties of the steamboat inspection service might be set forth as follows ⁹

- 1 Inspection
 - (a) Hulls
 - (b) Boilers and boiler plate
 - (c) Equipment
 - (d) Issuance of certificates of inspection
- 2 Examination, licensing, and certification of officers and seamen
- 3 Determination of ships' complements of officers and crew
- 4 Investigation of marine casualties
- 5 Establishment of regulations to prevent collisions
- 6 Administration of certain laws pertaining to the capacity of passenger vessels and the carriage of dangerous cargo

Various bulletins are published from time to time. They contain information concerning passing rules applicable to the Great Lakes and certain other inland waterways, a list of all officers

⁹ See The Steamboat Inspection Service, Institute for Government Research (1922).

licensed during the preceding year, interpretations of the inspection laws, and other facts having a bearing upon the work of the Bureau

In order to facilitate the administration of the duties of the service, the United States is divided into 11 districts in charge of supervising inspectors. A further division creates 46 local districts, in each of which there is a local board of inspectors consisting of an inspector of hulls, an inspector of boilers, and assistant inspectors who aid them. The local boards are under the direction of the supervising inspectors, who are responsible for efficiency in the separate districts, who interpret the laws for their subordinates, and hear appeals from the decisions of the local boards. Periodically, the Secretary of Commerce calls the supervising inspectors to Washington for a discussion of safety appliances and the formulation of regulations for the enforcement of the inspection laws.

The United States Shipping Board was made a part of the Department of Commerce by presidential decree in 1933 and is now known as the United States Shipping Board Bureau of that department. The duties of the board involve regulation of the rates, services, and competition of carriers by water and will be discussed in detail in Chapter XXX.

TREASURY DEPARTMENT

Early in the history of the American government, provision was made for assistance to vessels in distress along the seaboards of the United States. The Revenue Cutter Service was established in 1790 and continued to enforce the customs laws and to send assistance to vessels in distress until 1848 when the Life-Saving Service came into existence to relieve it of the latter duty. In 1915, these divisions were included in the Coast Guard, largely because the similarity of the work made desirable greater coordination to avoid duplication of effort.

The activities of the Coast Guard are carried out along thousands of miles of seacoast and upon the Great Lakes. For administrative purposes, the territory served is divided into 13 districts in which 242 life-saving stations were maintained on June 30, 1934. During the preceding year, more than 5,500 persons were rescued from peril and hundreds of vessels in distress

assisted The coast line is patrolled by airplanes, patrol boats, and beach patrolmen from the various stations to guard against loss of life and property At the stations a constant look-out is maintained, warnings are issued of impending storms, and suitable rescue boats are in readiness to render aid in emergencies At the end of the fiscal year, June 30, 1934, the personnel of the service included 461 commissioned officers and more than 8,700 enlisted men Equipment included 279 cutters, patrol and picket boats in addition to the life-boats and surf-boats attached to the life saving stations, many airplanes, radio installations, and several thousands of miles of telephone and submarine cable lines are also operated by the service

The presence of icebergs off the Grand Banks of Newfoundland offers a serious menace to navigation, and during the months of April, May, and June, United States Coast Guard cutters assist in patrolling that area Icebergs are destroyed or their positions wirelessly reported to vessels in the vicinity as a safeguard against collisions During the season, the patrol boats receive reports from ships at sea and from shore radio stations and in that way assemble information which is broadcast twice daily to all parts of the North Atlantic Although the ice patrol is performed by the United States, the expense is borne jointly by this country and the major European nations, with France, Germany, Great Britain and the United States assuming more than 78 per cent of the total cost

In addition to the duties already mentioned, the Coast Guard is called upon to enforce the laws against smuggling, to destroy derelicts, to assist the Bureau of Navigation and Steamboat Inspection in the enforcement of the Navigation Laws, and to aid in times of floods upon inland waterways Under the law, the Coast Guard, as a part of the defensive forces of the United States, may be transferred to the Navy Department by the President in time of war or other emergency

In some respects, the activities and organization of the Coast Guard are similar to those of the Navy, and there is some indication that the Coast Guard may be transferred from the Treasury Department to the Navy Department in the interests of economical and efficient administration

One of the earliest Federal activities not related to actual

government of the nation had to do with the temporary relief and maintenance of sick and disabled seamen. With the expansion of maritime interests, many marine hospitals were constructed and provisions made for proper care of seafaring people. The organic act providing for an established marine hospital service was passed in 1870. Shortly after 1870, the scope of the work was widened, and eventually the Public Health Service was organized by an act of August 14, 1912. At present, the activities of the service are too numerous for discussion here excepting as they may apply directly or indirectly to some phase of shipping.

Hospital and dispensary treatment are available for (1) persons employed on vessels registered, enrolled, or licensed under the laws of the United States, and sick and disabled seamen of foreign vessels, (2) officers and enlisted men of the Coast Guard, Coast and Geodetic Survey, Army, and Navy, (3) immigrants, at the Port of New York, (4) officers and crews of vessels, and light keepers of the Lighthouse Service, (5) crews of vessels engaged in the deep-sea fisheries.

The medical inspection of immigrants was begun in the United States in 1890, and the physical condition of the millions who have entered this country since that date was passed upon by physicians as an aid to the prevention of disease and to determine if the entrants have physical or mental defects sufficient to endanger their ability to support themselves. In this connection the service acts in cooperation with the Department of Labor which enforces the immigration laws.

Various national quarantine laws have been passed, the earliest in 1796, but it was not until 1878 that the Federal Government went beyond the extension of aid in the enforcement of local quarantine regulations by the states and municipalities. Succeeding laws extended the authority of the Federal Government, until to-day wide control over the entrance and clearance of vessels is exercised by the Public Health Service. All vessels clearing for the United States must obtain a bill of health from an American consular or medical officer at the port. The bill of health contains information regarding the state of health and sanitary conditions in the port including a report of diseases prevailing, and a statement to the effect that the vessel meets the

requirements for entrance at an American port Upon reaching this country, the vessel, passengers, and crew are inspected If contagious disease exists aboard the ship, detention and fumigation or disinfection orders are issued to prevent the spread of disease

During the fiscal year ending June 30, 1934, the Public Health Service furnished medical treatment to 305,000 seamen and other legal beneficiaries in 26 marine hospitals, and by contract in 183 non-government hospitals in 154 ports in the United States and possessions More than 1,700,000 persons and 14,796 vessels were inspected and 1,289 vessels fumigated ¹⁰ The service also administered special physical examinations legally required by the Steamboat Inspection Service for licensed ship's officers and seamen

DEPARTMENT OF AGRICULTURE

Only in one particular is the work of this department directly beneficial to shipping Since 1891, the Weather Bureau has performed an increasingly valuable service by forecasting changes in the weather and issuing warnings of approaching storms The law organizing the bureau provided that it "shall have charge of the forecasting of weather, the issue of storm warnings, the display of weather and flood signals for the benefit of agriculture, commerce, and navigation, the gauging and reporting of rivers, the maintenance and operation of seacoast telegraph lines, and the collection and transmission of marine intelligence for the benefit of commerce and navigation "

Some years ago the chief of the Weather Bureau stated that of the various warnings issued by the Weather Service ¹¹

Those of storms and hurricanes, issued for the benefit of marine interests, are the most important and pecuniarily valuable Storm warnings are displayed at nearly 300 points along the Atlantic, Pacific and Gulf Coasts, and the shores of the Great Lakes, including every port and harbor of any considerable importance, and so nearly perfect has this service become, that scarcely a storm of marked danger to maritime interests has occurred for years for which ample warnings

¹⁰ Annual Report of Secretary of the Treasury for fiscal year ending June 30, 1934

¹¹ H. E. Williams, *The Weather Bureau* (Government Printing Office, 1921)

have not been issued from twelve to twenty-four hours in advance. The reports from the West Indies are especially valuable in this connection, as they enable the bureau to forecast with great accuracy the approach of those destructive hurricanes which, during the period from July to October, are liable to sweep the Gulf and Atlantic coasts. The sailings of the immense number of vessels engaged in our ocean and lake traffic are largely determined by these warnings, and those displayed for a single hurricane are known to have detained in port on our Atlantic coast vessels valued, with their cargoes, at over \$30,000,000.

The Bureau has arranged with various wireless and telegraph services for the prompt dissemination of forecast messages and storm warnings.¹²

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¹² The foreign trade promotion activities of the Department of Agriculture are discussed in G. G. Huebner and R. L. Krainer, *Foreign Trade Principles and Practices*, Chap. viii. This chapter also discusses the foreign trade activities of the Federal Reserve Board and the Federal Trade Commission. The foreign trade activities of the Department of State are discussed in Chap. vi of that volume.

CHAPTER XXIX

AID AND REGULATION OF SHIPPING BY THE STATES AND MUNICIPALITIES

THE power to regulate commerce with foreign nations, and among the states, is vested in the national government by the Constitution, which also provides that "no state shall, without the consent of the Congress, lay any imposts or duties on imports or exports, except what may be absolutely necessary for executing its inspection laws," and also that "no state shall, without the consent of Congress, lay any duty on tonnage "

The clauses seem very clear and definite, but a long line of decisions of the Supreme Court has been necessary to define the limits of Federal and state authority over commerce. At the time of the adoption of the Constitution, each state in its own way was aiding and regulating commerce, and, instead of immediately ceasing to exercise authority over interstate commerce, the states have abandoned commercial regulation gradually as the Federal Government has assumed the powers it possesses.

Fortunately for the development of the United States, the powers of Congress over interstate commerce were broadly interpreted by Chief Justice Marshall in 1824, in the celebrated case of *Gibbons v. Ogden* (9 Wheaton, 1), in which the Supreme Court held that a vessel enrolled by the Federal Government to engage in coastwise interstate commerce could not be required to obtain a state license. It was held that the United States, and not the states, could determine the condition under which interstate commerce may be carried on. Three years later, in *Brown v. Maryland* (12 Wheaton, 419), the Supreme Court annulled a law of Maryland that imposed a license tax of \$50 on importers of foreign articles. The court argued that this was a tax, that it regulated international commerce, and was unconstitutional. The states cannot compel a vessel enrolled by the Federal Government to take out state registration papers. A law passed by

Alabama in 1854, requiring special state registration, was held by the Supreme Court in 1860 (*Sinnot v Davenport*, 22 Howard, 227) to be unconstitutional

A state may lay a tax on the property value of the vessels owned by its citizens. This tax, however, must be levied on the property of the ship, and not upon its enrolled or registered tonnage. In 1866 Alabama imposed a tax of \$1 per ton upon all vessels operating upon the navigable waters within the state, but the Supreme Court in 1871 annulled the law (*Cox v The Collector*, 12 Wallace, 204). Nor can a state authorize a board of port wardens to impose fees upon ships entering its ports. In 1867, (*Steamship Company v Port Wardens*, 6 Wall, 31), this point was decided by the Supreme Court. The state, furthermore, is without authority to impose an occupation tax upon shipping. Louisiana, in 1870, empowered New Orleans to levy a tax upon all persons pursuing any trade or profession, and the city placed a tax of \$500 on persons or corporations owning and running towboats to and from the Gulf of Mexico. A man by the name of Cooper, owning two steam propellers, enrolled at New Orleans under the laws of the United States, refused to pay the tax, and he was sustained by the Supreme Court of the United States in 1884, for the reason that the state could not require a tax to be paid for the privilege of employing vessels in a manner authorized by the license of the United States (*Moran v New Orleans*, 112 U S 69).

The general power of the Federal Government over navigable waterways and navigation was also clearly determined by the U. S. Supreme Court (*Gilman v Philadelphia*, 3 Wallace, 713), in which the court held as follows:

Commerce includes navigation. The power to regulate commerce comprehends the control for that purpose, and to the extent necessary, of all the navigable waters of the United States which are accessible from a State other than those in which they lie. For this purpose they are the public property of the Nation, and subject to all the requisite legislation by Congress. This necessarily includes the power to keep them open and free from any obstruction to navigation, interposed by the State or otherwise, to remove such obstructions when they exist, and to provide, by such sanctions as they may deem proper, against the occurrence of the evil for the punishment of the offenders. For these purposes Congress possesses all the powers which existed in the States

before the adoption of the National Constitution, and which have always existed in the Parliament in England. It is for Congress to determine when its full power shall be brought into activity and as to the regulations and sanctions which shall be provided.

These references to some of the more important decisions interpreting the powers of the national and state governments to regulate interstate and foreign commerce show that the federal power is plenary, that vessels enrolled by the United States for the coastwise trade cannot be burdened or restricted by state laws regarding registration, licenses, fees, or tonnage taxes. The state may tax ships as property, it may tax navigation companies on their capitalization, franchises and income, or in accordance with other taxes levied on corporations, it may also tax terminal properties, but it may not levy tonnage taxes as such and it may not tax commerce except to the extent that it "may be absolutely necessary for executing its inspection laws."

STATE AND MUNICIPAL AID

The power to regulate includes the power to aid, and the United States Government has pursued a liberal policy in its harbor improvements. Before 1789, the states carried on such improvements as were made to the channels and harbor areas of the ports, and for some time after 1789 the states continued to execute these works, in accordance with plans approved by the national government. To raise the funds to meet the expenses of harbor works, the states were permitted by Congress to levy tonnage taxes. For instance, Congress passed an act in 1806 enabling the Board of Port Wardens for the port of Philadelphia to impose a tax of four cents a ton on all vessels clearing from the port, the receipts of the tax to be used in improving the navigation of the Delaware River and in constructing piers. Congress began in 1822 to make regular appropriations for harbors, before that time Congress did little more than to maintain the lighthouses.

The large appropriations by Congress for the improvement of harbors began to be necessary about 1870, as the result of the use of vessels of deep draft. Since then ships have steadily increased in size, the volume of maritime trade has grown rapidly, the number of seaports has become larger, and the expenditures

required to modernize and maintain harbors have risen year by year

In 1905, there was much said in Congress in favor of requiring the states having the largest ports to share a part of the expense of harbor improvements. The appropriation of \$500,000 made by Congress that year for the completion of the 30-foot channel in the Delaware River was made contingent upon an appropriation of \$750,000 being made by the State of Pennsylvania. Half the \$750,000 was furnished by the State Government, and the other half by the city of Philadelphia. Since 1905, the dual plan of harbor improvement through national and state appropriations has not been generally applied, but a tendency to make federal aid contingent upon state or municipal contributions is well developed. At Savannah, Georgia, for example, a federal appropriation for the improvement of the Savannah River was made contingent upon the improvement by the city of a tract of water-front property that had been offered to the city by private organizations. At Tampa, Florida, it was stipulated in connection with a Federal appropriation that the municipality should acquire and develop a waterfrontage to at least 1,400 feet on a specified new channel, and that the remainder of the frontage on both sides for a distance of 700 feet back should be controlled by the municipality so as to insure the proper use of all terminals on equal and reasonable terms. It was also stipulated that all terminal charges should be subject to the approval of the Secretary of War. An appropriation for the improvement of the Providence River, in Rhode Island, similarly was made contingent upon the completion of certain public terminal and other permanent public harbor improvements by the state and municipality.¹

CONTROL OF PILOTS AND PILOTAGE

Control over pilots and pilotage is exercised both by the states and the Federal Government. The regulation of pilotage by the states, however, is by permission of Congress. As the several states had detailed pilotage laws in 1789, Congress confirmed those laws by providing that "until further provision is made

¹ U. S. Bureau of Foreign and Domestic Commerce, *Ports of the United States*, p. 25.

by Congress all pilots in bays, inlets, rivers, harbors, and ports shall continue to be regulated by the laws of the States wherein such pilots may be, or with such laws as the States may respectively enact for the purpose "

Congress has been obliged to supplement the state pilotage laws to prevent interstate friction. A vessel entering a river or port forming the boundary between two states is required to take the first pilot offering his services, the pilots of one state may not be preferred over those of another. Congress has also prohibited a state from discriminating against interstate commerce by making the pilotage charges less for a vessel when its trip is between ports of the state than when it is sailing between ports in different states. The navigation laws of the United States require that the captain and mates of all steamers enrolled for the coastwise service shall qualify as pilots and be licensed by the United States. The states are prohibited from requiring the pilots of steam vessels to secure a state license in addition to the one granted by the United States. A coastwise steamer may enter a port without taking a pilot, but a sailing vessel cannot do so, even though the sailing vessel is towed into port by a steam tug on which there is a licensed pilot. This seems an unnecessary discrimination against the sailing vessel.

The control over pilots and pilotage exercised by the states may be illustrated by referring to Philadelphia and New York City. One of the duties of the Board of Commissioners of Navigation for the Delaware River is the control of pilotage on the entire river and its navigable tributaries within the state of Pennsylvania, and the examination, licensing and control of pilots. The rates of pilotage are fixed by an act of the Pennsylvania state legislature of March 30, 1899. From the capes of the Delaware to the city of Philadelphia, or in the opposite direction, the official rates of pilotage per half foot of vessel draft are \$2.00 for vessels having a draft of 12 feet or less, and \$2.50 for vessels having a draft in excess of 12 feet. When, however, a pilot speaks an inward-bound vessel at points east of the Five-Fathom bank light-ship or north of Hereford Inlet Lighthouse, or south of Fenwick's Island Lighthouse, these pilotage rates are increased by 10 per cent. If a vessel is not spoken until it arrives inside of a line drawn from Cape May Light to Cape

Henlopen Light, a deduction of 10 per cent is made from the regular pilotage charges. Pilotage is compulsory for all vessels excepting those engaged in the coastwise trade, inward-bound vessels not spoken outside of the capes, and vessels "solely coal laden with coal mined in the United States."²

The rates of pilotage at the port of New York are similarly fixed by acts of the state legislature, mainly by the consolidation act of 1882, amended to date.³ Inward pilotage rates through New York Bay via Sandy Hook, from April 1 to November 1, are \$4.88 per foot for vessels drawing 21 feet or more, for a draft from 6 to 14 feet, the rate is \$2.78, from 14 to 18 feet, \$3.38 per foot, and from 18 to 21 feet, \$4.13 per foot. Outward pilotage rates through New York Bay are lower, but similarly range from \$2.02 per foot for vessels having a draft of less than 14 feet, to \$3.56 per foot for vessels with a draft of 21 feet or over. These rates, both inward and outward, are increased during the winter months from November 1 to April 1, inclusive, to the extent of \$4.00 for each pilotage. A different code of pilotage charges applies through Hell Gate, where pilotage rates vary in accordance with the class of vessel. Charges for inbound or outbound pilotage through Hell Gate are \$1.75 per foot for sloops and schooners, and \$3.00 per foot for other vessels. During the winter months an additional charge of \$4.00 may be made for square rigged ships, steamers or motor vessels and of \$2.00 for schooners or sloops.

HEALTH AND QUARANTINE CONTROL

Formerly both the state and Federal governments participated in the enforcement of health and quarantine regulations. Each has the power of taking such measures as may be necessary to protect the health of its citizens. Congress has power to subject interstate and international travel and traffic to such rules and restrictions as the welfare of the country may require, and, while each state is giving increasing attention to the prevention of diseases and epidemics within its borders, the states now look to the United States Bureau of Public Health to regulate commerce

² Pennsylvania Act of March 29, 1903, amended June 8, 1907.

³ New York State, Laws of 1882, Chaps. 29, 410, Laws of 1903, Chap. 513, Laws of 1919, Chap. 328.

to prevent the outbreak and spread of diseases The national government can adopt measures to be observed in all parts of the United States and in the insular possessions It can also cooperate with foreign governments in the work of checking disease

As the protection of the health of their citizens is one of the police powers reserved by the states, the national government was obliged, in the main, to work through the state authorities in its measures regarding public health There is no question as to the power of the national government to place quarantine restrictions upon interstate and foreign commerce, but as the states also have that power, the tendency, especially until 1893, was for the national government to rely upon the states In 1878 Congress provided for national quarantine, and in 1879, in consequence of the epidemic of yellow fever in the southern states during 1878, a National Board of Health was created, to last for four years This board of health not only operated through the United States Marine Hospital Service in aiding the state and local health officers, but also established numerous quarantine stations, and these temporary stations were, by an act of Congress passed in 1888, made permanent, and were equipped for their purposes

The next step in the development of the national quarantine service was taken in 1893, in consequence of the danger to which the people of the United States were subjected by the appearance of the Asiatic cholera in the European ports from which large numbers of immigrants were brought to this country This law provided "for the formulation of uniform regulations to be observed by all state and local quarantine authorities in preventing the introduction of epidemic diseases from foreign countries, and the spread of such diseases from one state or territory to another" If the states or municipalities neglected or refused to carry out the national regulations, the President could appoint officers to execute the rules

Until 1902, the title of Marine Hospital Service was retained without change, although the service had come to include all quarantine duties, the medical inspection of immigrants, and all measures taken by the United States to protect the public health, but, in 1902, Congress gave the service the more ap-

propriate title of the United States Public Health and Marine Hospital Service, and in 1912 its title became the Bureau of the Public Health Service. The service remains under the Secretary of the Treasury, where it has always been.

Since 1921, the Public Health Service has administered the quarantine functions at all United States ports including those in the insular possessions. In the period between 1878 and 1921 the administration of this function was gradually delegated and transferred to the Federal Government (Public Health Service) successively by the several States. This in part was due to a growing need for uniformity in quarantine procedure at all United States ports, reflecting in large measure a growing consciousness of the international aspect of such functions.⁴

All vessels entering the port of New York must stop at the entrance to the bay opposite the quarantine station on Staten Island. One or more health officers board the ship, and the bill of health from the port of departure must be shown by the master of the vessel, and he or the ship's physician must report all sickness, accidents, deaths and births that have occurred on the voyage. If the vessel has come from an infected port, or if a contagious or infectious disease is found to exist among the passengers or crew, the ship may be fumigated and detained until the health officer thinks the vessel may discharge its passengers and cargo without endangering the public health.

The quarantine charges of the Public Health Service at the port of New York and all other United States ocean ports are as follows. Each vessel from a foreign port must pay an *inspection fee* of \$10.00 if its gross tonnage exceeds 500 but is less than 5,000 tons gross, and \$15.00 if it has a tonnage of 5,000 gross or more, for other vessels an inspection fee of \$5.00 is charged. Charges for *detention services* include subsistence, housing and medical fees of \$3.00 per day for cabin passengers and ship's officers, \$2.00 per day for steerage passengers and crew, and, one-half rates for housing and medical care only. Charges for detention services also include a vaccination charge of 25 cents per person, and charges of the same amount per person for special bathing and per piece for disinfecting personal baggage.

⁴ Statement by Assistant Surgeon General, Public Health Service, 1934. See also International Sanitary Convention of Paris, June, 1926, reprint No. 1236, Public Health Reports, July, 1928.

and effects Charges for *fumigation* include 12 cents per 1,000 cubic feet of space for chemicals, \$5 00 for supervision, 50 cents per hour per man for labor, actual costs incurred for transportation to places other than quarantine anchorage and for loss or damage to equipment, and, a surcharge of 50 per cent for service on Sundays or legal holidays There is also a charge of \$5 00 per day for each quarantine guard at places other than quarantine anchorage, and \$10 00 for inspections to secure deratization exemption⁵

After passing the quarantine inspectors who are stationed at Rosebank, Staten Island, the vessel may proceed to her pier, but if she has steerage passengers aboard, they must be passed upon by inspectors from the Ellis Island Station of the Immigration Service The would-be immigrants that are found to have a disease that bars them from entering the United States must be taken back, by the company that brought them, to the port from which they came, and if it shall appear that the alien had the disease when he started on the voyage, and that the disease might have been detected by inspection, the steamship company is liable to a fine and necessary hospital expenses

If an immigrant who does not have an unexpired immigration visé is brought to the United States, the steamship company is liable to a fine and "in addition a sum equal to that paid by such alien for his transportation from the initial point of departure indicated in his ticket to the port of arrival for each and every violation of the provisions of this Section, such latter sum to be delivered by the collector of customs to the alien on whose account assessed" These penalties also apply in case of a quota immigrant who has an immigration visé which specifies him as a non-quota immigrant

REGULATION OF WATER TERMINALS

In the regulation of piers, wharves, docks, elevators and other facilities for handling traffic the dual authority of the Federal Government and the states or municipalities is again to be noted The Federal Government has complete control over the navigable channels and fixes the lines beyond which shore structures may

⁵ Supplement to Board of Engineers for Rivers and Harbors and U S Shipping Board, Port and Terminal Charges at U S Ports (1932), p 1

not extend into the channel, but, between the pier line and the shore, the states and the municipalities exercise many regulatory powers. The various methods of port administration by the states and municipalities or by semi-independent public trusts were considered in Chapter IV. Varying degrees of public control over water terminal services, charges, regulations and practices are generally exercised at most large American ports by the municipalities or states. It will be recalled that some American ports are public in the sense that either the municipality or the state actually owns the water-front, and provides most of the needed terminal facilities. Even at the ports where much water-front is owned by private concerns there has been a tendency of either the municipality or the state to acquire a portion of the water-front, to provide a number of public wharves and to regulate, in a measure, the services, charges and regulations of privately owned terminal facilities. The policy of the states and municipalities regarding their port charges were considered in Chapter IV. However in Chapter XXXII it will be noted that the Interstate Commerce Act applies to water terminal facilities operated in connection with interstate shipments made partly by rail and partly by water. The Interstate Commerce Commission has, in many instances, exercised jurisdiction over such terminals. Its main object has been to prevent undue discrimination in the terminal charges and regulations. It will be noted also that the Interstate Commerce Act applies to all ferries operated in connection with interstate rail and water traffic despite the relatively short voyage by water.

The Shipping Act of September 7, 1916, moreover, applies not only to common carriers by water engaged in foreign and interstate commerce, but also to concerns that conduct a business of "forwarding or furnishing wharfage, dock, warehouse or other terminal facilities in connection with a common carrier by water." The provisions of the act prohibiting undue or unreasonable preference or advantage to particular persons, localities or traffic, those regulating the establishment and observance of just and reasonable regulations and practices relating to the receiving, handling, storing or delivering of property, those prohibiting the giving out of information detrimental to shippers or consignees, and those authorizing the Shipping Board

Bureau of the Department of Commerce to obtain periodical or special reports, records, etc., apply alike to common carriers by water and to concerns performing water terminal services in connection therewith

POLICE SUPERVISION

The municipal governments exercise police supervision over the ports under their jurisdiction, and, in case of a great harbor and port like New York, this is a task of some magnitude. The policing of the portion of the harbor under the jurisdiction of the city and state of New York is directed by the local commissioner of police. The police department conducts the actual harbor patrol work through a "harbor squad" equipped with a number of patrol boats. Under normal conditions from seven to ten boats patrol the harbor continuously. The harbor squad is engaged in boarding incoming vessels when necessary, in taking off prisoners, in attending and aiding at fires along the river front, in keeping order on excursion steamers, in assisting vessels in distress, in recovering of drowned persons, in preventing stealing, as far as possible, from barges, vessels and wharves within the harbor, and in general in enforcing the laws and ordinances of the city.

Although the police supervision of American ports is principally vested in the state and municipal governments, it is nevertheless dual in a limited degree. At New York, for example, the Federal Government through a naval officer who becomes the United States Supervisor of the Harbor exercises police control in so far as it relates to the enforcing of the federal laws against the dumping of material in navigable waters. Local enforcement of general navigation laws is vested with the Coast Guard of the Treasury Department, for this purpose patrol boats are assigned to the district under the direction of a coast guard officer. Fire protection is afforded by 10 fire-boats which are stationed at strategic points by the municipality.

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CHAPTER XXX

THE AMERICAN SHIPBUILDING INDUSTRY AND GOVERNMENT AID

THE shipbuilding industry is one of the oldest in the United States. Many prosperous shipyards flourished in New England and in New York from early colonial days, and, from a somewhat later date, in Philadelphia, until after the Civil War. There was an abundance of suitable timber for building wooden sailing vessels, an adequate supply of labor was available, standardized types of sailing vessels known throughout the world were developed, and there was a large demand for American vessels, principally among American shipowners, but to some extent also abroad. Shipbuilding and shipowners were very closely affiliated. Many vessel owners were financially interested in shipyards, shipyard proprietors at times constructed vessels for themselves or retained an interest in them, and in off-seasons sailors were employed as workmen in shipyards.

AMERICAN SHIPBUILDING BEFORE AND AFTER THE CIVIL WAR

The shipbuilding industry in the United States has developed largely in accordance with the progress of our mercantile and naval marines. Until the Civil War our merchant marine was large and increased year by year, and the American shipbuilders carried on an expanding business. They not only supplied the shipping purchased by Americans, but also sold a large tonnage to foreign buyers, because our shipwrights could build wooden vessels cheaper and better than their competitors could. The American packet and clipper ships enjoyed an enviable reputation for seaworthiness and speed. The decline in the demand for American-built ships among home and foreign buyers came with the gradual substitution of iron for wood in vessel construction after 1850, and with the decrease, which began in 1861, in the tonnage of American vessels engaged in the international carrying trade.

Shipbuilding activity in the United States, prior to 1917, reached its maximum during the decade ending with 1861. During those ten years there were 3,600,748 tons of shipping constructed in American yards. The output was greatest in 1854 and 1855, when 1,119,496 tons—about 560,000 tons annually—were launched. With the exception of 1908, those are the only years before the great World War when the annual tonnage of shipping constructed has exceeded 500,000. During this decade preceding the Civil War the documented tonnage of the American merchant marine rose from 3,500,000 tons to 5,500,000, and 350,000 tons of shipping were sold to foreign buyers.

The Civil War required the construction of a great many war vessels, and it would not have seriously crippled our shipbuilding industry had the war been followed by a demand for American-built ships. The demand did not follow the war, because foreign buyers desired to purchase iron ships, which our yards could not supply, and because ships operated under the American flag were not able to compete successfully with foreign vessels in the international carrying trade. Moreover, for twenty years following the Civil War the United States Government neglected its navy and placed no orders for war vessels among our shipbuilders.

The effect of these causes upon the decline of shipbuilding activity for over thirty years after the Civil War is revealed in the statistics of tonnage annually constructed. At the end of the war American shipyards were turning out annually between 300,000 and 400,000 tons of ships of all classes, but with the exception of two periods of temporary revival—one in 1873 and 1874, and the other in 1891—the annual output did not reach 300,000 tons until 1899. Moreover, these figures do not indicate the real decline in the shipbuilding industry, because they include the tonnage constructed for the increasing coastwise trade, and for the Great Lakes and other inland waterways where only American-built ships could be employed. The merchant tonnage annually built on the seaboard amounted to about 300,000 tons at the close of the Civil War, after which it declined to about 100,000 by 1880. A short revival came in the early eighties, and another in the early nineties, but with those exceptions the coastwise shipyards made no headway after

1880, until the somewhat more prosperous period beginning with 1899 was reached. The output of the entire shipbuilding industry then rose to 400,000 tons gross or more annually, the highest point being reached in 1908 with 614,216 tons. Over half of the large output of 1908—216 vessels of 341,165 tons gross—however, came from the shipyards of the Great Lakes, where the rapid increase in the lake trade had occasioned an unusual demand for tonnage. The limited variety of commodities comprising the bulk of the commerce of the Great Lakes, moreover, had encouraged a degree of standardization far in excess of what had been accomplished in seaboard shipyards. After 1908 the annual output of American shipyards dropped back to a level fluctuating between 225,000 and somewhat less than 350,000 tons gross. The gross tonnage constructed in 1915 was 225,122 and in the fiscal year 1916, 325,413 tons.

CAUSES OF DECLINE OF MERCHANT MARINE IN THE FOREIGN TRADE AFTER THE CIVIL WAR

The decline in the tonnage of the American marine engaged in international trade is easily explained, and is fully accounted for by the following causes:

- 1 The gradual but steady substitution of steamers for sailing vessels, and of iron for wooden hulls after 1850, transferred to the United Kingdom the superiority which the United States had possessed up to that time in the construction of ships. The iron industries of Great Britain in 1850 were twenty-five to thirty years in advance of those in the United States, and American manufacturers were unable to compete with the British either in the production of iron for hulls or of machinery for motive power. The construction of iron ships in the United States did not begin much before 1870, and then in but a small way.¹

¹ "The early statistics of iron ship building in the United States have never been fully compiled. The tables of the Bureau of Navigation in the Treasury Department begin in 1860 with an iron tonnage built of 4,684 tons out of a total tonnage built of 275,230 tons, or 16 per cent. We know that iron vessels were built before this date in this country—several, in fact, before the war—but they were isolated cases, and probably in no previous year was the proportion as great as at the time when the records begin. In 1870, this proportion was 3 per cent, as against 82 per cent, in England" (J. R. Soley, *The United States*, ed., N. S. Shaler, p. 608.)

The cost of constructing iron and steel vessels in the United States has normally been greater than in foreign countries. This was important in the shipping industry because the registry laws of the United States, until 1912 and 1914, with certain exceptions, restricted registry for the foreign trade under the American flag to American-built vessels. Great Britain was prepared to change from wood to iron, and from sail to steam, and the United States was not, the result was that Great Britain secured a long lead over the United States not only in building, but also in operating, ships. The change from wood to iron and steel was very slow in the United States, but other nations, particularly Great Britain, were quick to concentrate upon the construction of metal hulls. As late as 1900 about one half of the vessel tonnage built in American yards was of wood and 42 per cent of the total were propelled by sail.²

The advantage to Great Britain occasioned by the shift from wood to iron and steel was promptly recognized in British marine insurance circles. While the marine insurance business in the United States declined, British underwriters discriminated against wooden vessels. They quoted favorable premiums on iron and steel vessels, of which but few were operated under the American flag until the decade 1880-1890.

The lead of Great Britain in deep-sea shipping was maintained even after steel shipyards had been developed in the United States, in part because the higher construction costs burdened the American registered merchant marine with capital costs substantially above those of vessels operating under foreign flags. These costs made the initial investment greater, the interest charges higher, and the outlay for depreciation, insurance and taxes greater.

2 While the shift from wood to iron and steel and from sailing vessels to steamers was causing a revolution in the business of shipbuilding and navigation, two unfortunate causes tended to weaken the power of the American maritime interests to compete with those in Great Britain. One cause was the withdrawal in 1858 of the support which the Federal Government had given shipping under the laws of 1845 and subsequent years. The withdrawal of these subsidies came at a time when the

² The American Merchant Marine, American Bureau of Shipping, 1933

merchant marine especially needed support in meeting the competition of foreign-built iron vessels. The three small and short-lived contracts entered into immediately after the close of the Civil War were not sufficient to stem the decline, nor were the mail payments that were provided for in the Mail Contract Act of 1891.

3 The effect of the Civil War upon the American deep-sea merchant marine was disastrous, because the shock of the war came at a critical epoch in the evolution of shipping interests, at a time when American shipbuilders and shipowners needed support and assistance in tiding over the period of transition from sail to steam and wood to iron. Instead of receiving aid to enable it to meet foreign competition, American shipping was for four years heavily taxed, and was either idle for want of traffic to carry, or subject to capture by Confederate cruisers, the most destructive of which were fitted out in the shipyards of Great Britain, the most serious maritime rival of the United States. The registered tonnage under the American flag in 1861 was 2,496,894, five years later it was only 1,387,566. About 800,000 tons of American vessels were sold to foreign rivals or transferred to a foreign flag during the war, Confederate cruisers captured about 100,000 tons, over 150,000 tons were lost at sea, nearly 100,000 tons were bought by the United States and converted into war vessels, and the average number of vessels was annually abandoned and taken from the register because worn out.

4 It would seem that the government of the United States would have been quick to give assistance to the merchant marine at the close of the war. No industry had suffered more during that conflict, none had greater need for, nor a greater claim upon, government support. Congress supported manufactures by maintaining a high protective tariff, but failed to take effective measures to build up the merchant marine. The only assistance given to shipping by the United States Government was the legislation providing for the mail services between New York and Brazil, and between California and Hawaii, Japan, and China. These subsidies covered only a few routes, and those of minor commercial importance. Moreover, the assistance was withdrawn at the end of ten years.

Indeed, Congress burdened American shipping in various ways. Vessels that had been transferred to foreign flags during the Civil War were refused readmission to American registry, the heavy war revenue taxes on shipping were not withdrawn until 1868, shipbuilding materials imported to be used in constructing and equipping wooden vessels for the foreign trade were not exempted from import duties until 1872, and it was not until 1890 that Congress exempted from duty materials to be used in constructing iron and steel vessels for use in international commerce. Liberal payments for carrying the foreign mails under time contracts, moreover, were not made until 1891.

5 The neglect of the American navy for twenty years after the Civil War deprived the shipbuilding and maritime interests of one of the most effective aids the government might have rendered. By the close of the Civil War, wooden vessels had become antiquated for naval purposes, but the United States took no steps to modernize its navy by constructing iron steamers. By delaying the construction of war-ships, the United States avoided the use of iron, which had been superseded by steel when it began to build up its present navy, and thus had its advantages, but the postponement of the naval program from 1865 to 1885, and later, delayed the reorganization of the shipyards and the substitution of plants for building iron and steel steamers, in the place of yards for constructing wooden sailing vessels.

6 France, Germany, the United Kingdom, Japan and other countries gave their shipping interests much more government support than the United States gave the American merchant marine. Without considering whether the policy of these foreign rivals has been wise, or whether the United States should have given stronger support to its merchant marine, there can be no question that the aid given to foreign shipping made competition on the part of the American marine more difficult. In addition to other handicaps under which the maritime interests of the United States labored—the more advanced condition of the iron and steel industries in Europe, the lead obtained by the United Kingdom in the international carrying trade, etc.—was added the greater government support given to foreign shipping.

7 Had the policy of free admission of foreign-built ships pre-

vailed, there would have been no assurance that the registered merchant marine would have been increased or even maintained after the Civil War. Shipping under the American flag in the foreign trade has been handicapped by operating costs substantially higher than those of foreign vessels, and this continues to be true at the present time. The largest operating handicap has been the cost of labor. The watch officers of American vessels were required by law to be American citizens, and they demanded and usually received higher pay than did the officers of foreign vessels. The crews of American vessels likewise receive higher wages than are paid men on foreign vessels, even though only a part of the seamen on American ships must be American citizens. From 43 to 50 per cent of the crews of American merchant vessels are citizens of the United States, including both native-born and naturalized, and they set the scale of wages paid on American vessels. Foreign vessels have the advantage of lower wages even in the labor markets that supply both American and foreign vessels.

The labor cost incurred in the operation of a vessel depends not only upon the rate of wages, but also upon the number of officers and men on board. The number of men in the case of American vessels is regulated in part by statute, and in part by the United States Steamboat Inspection Service, and the requirements are somewhat stricter than those of Great Britain. The cost of food and supplies for the crew is a large factor in the labor cost, and it is higher for American than for most foreign vessels. The legal requirements are only partly responsible for the higher subsistence costs incurred on American vessels, larger quantities of food than are legally required are frequently provided as a means of attracting and holding competent crews. A higher standard of living is maintained on American than on foreign vessels.

The handicap of higher labor costs particularly on Pacific routes is increased unnecessarily by the provisions of the Seamen's Act of March 4, 1915, concerning the percentage of the crew that shall have the rating of "able seamen," and the provision that 75 per cent of the crew shall understand the language in which the orders are given makes it difficult for American to compete with Japanese vessels.

Operating costs are not, however, to be judged solely by the outlay for wages and subsistence. Until 1915, American vessels were handicapped somewhat by the measurement rules of the United States in accordance with which gross- and net-register tonnage was ascertained. The inspection requirements of the United States Bureau of Navigation and Steamboat Inspection also were stricter than those of Great Britain and sometimes made necessary expensive alteration costs not incurred abroad by owners of foreign flag vessels.

Until 1890, steaming coal was cheaper in Great Britain than in the United States, but since then the price of bunker coal has shifted in favor of the United States, and the increasing use of fuel oil has had a favorable effect upon both fuel and labor costs. There are many important operating costs that are not any higher on American than on foreign vessels navigating the same routes, and it is erroneous to judge operating costs as a whole by the wide differences in wage and subsistence costs commonly referred to. Outlays for coal, fuel oil, tonnage dues, pilotage, port services of various kinds, stevedore services, towage, etc., are no higher for American than for foreign vessels, and on particular voyages some of these costs may at times be in favor of American vessels.

The total operating costs under the American flag during the years preceding the outbreak of the World War probably exceeded those of comparable foreign vessels by 5 to 15 per cent. This unfavorable operating differential was one of the basic reasons for the decline of our deep sea merchant marine while other industries were expanding.

8 The most fundamental reasons for the decline of the tonnage of the American merchant marine engaged in the foreign trade were not political, the chief explanation is to be found in economic causes. During the latter half of the nineteenth century the energy of the American people and their available capital found highly profitable employment in settling the West, in developing agricultural and forest resources, in opening mines, and in providing the wide territory of the United States with transportation facilities. These problems of internal development took the young men of the eastern states toward the West and away from the sea, while the rapidly growing manufacturing

industries in the East gave both native Americans and the immigrants from abroad increasing opportunity to secure remunerative employment

In a young and rapidly growing country, such as the United States was during that half century, capital as well as labor was scarce, and the domestic industries and trade readily absorbed all the capital the people of the United States could command. The handicaps of the American merchant marine mentioned above were only partly responsible for the flow of capital away from international shipping. It is likely that a decline in registered tonnage would have continued for many years after the Civil War, even if American vessels engaged in the foreign trade had not been handicapped in their competition with foreign vessels. If the financial returns of the American registered marine were too small to attract American capital, this was also true—although in a lesser degree—of the financial returns of merchant vessels operating under foreign flags. It was not until the close of the last century that any considerable amount of American capital was invested in foreign vessels.

The effects of the above influences are reflected in the tonnage of vessels engaged in the coastal and foreign trades between 1850 and 1910 as shown in the accompanying table. Of particular interest and significance is the decline in registered tonnage. From a commanding position in 1850, the overseas fleet of the United States shrank to an inconsiderable total of 782,517 gross tons in the ensuing sixty years, while the other industries of the country were progressing in an amazing manner. The fact that coastwise shipping has, since 1817,³ been reserved by law to American vessels permitted a wholesome growth in the total vessel tonnage employed in domestic commerce. Perhaps no other comparable industry in the history of the United States to the present time has shown so little progress through an equal period of time. In the year 1860, more than 65 per cent by value of American water borne foreign commerce was carried in vessels under United States registry.⁴ This percentage steadily declined

³ From 1789 to 1817 foreign vessels were handicapped by the imposition of discriminatory tonnage taxes. See Chap. xxvii.

⁴ Bureau of Navigation, Merchant Marine Statistics, 1928.

until it reached 87 per cent in 1910, when the registered tonnage had sunk to the lowest point since 1842

The lack of progress in the shipping and shipbuilding industries in the United States, in the period 1870-1910, is even more apparent when compared to progress in other fields. The national wealth increased sixfold. The beginning of mass production, made possible by improved machinery for manufacturing, and an extended and efficient system of transportation by railroad, were largely responsible. The production of coal increased tenfold, the railway mileage fourfold, and the value of water borne foreign commerce trebled.⁵

GROWTH OF AMERICAN COMMERCIAL FLEET⁶

(gross tons)

Year Ending June 30	Enrolled (Domestic Trade)	Registered (Foreign Trade)	Total *
1850	1,797,825	1,439,994	3,535,454
1855	2,543,255	2,348,358	5,212,001
1860	2,644,867	2,379,396	5,353,868
1865	3,381,522	1,518,350	5,096,782
1870	2,638,247	1,448,846	4,246,507
1875	3,219,698	1,515,598	4,853,732
1880	2,637,686	1,314,402	4,068,034
1885	2,895,371	1,262,814	4,205,934
1890	3,409,435	923,062	4,424,497
1895	3,728,714	822,847	4,635,960
1900	4,286,516	816,795	5,164,839
1905	5,441,688	943,750	6,456,543
1910	6,688,966	782,517	7,508,082
1915	6,486,384	1,862,714	8,389,429
1920	6,357,706	9,924,694	16,324,024
1925	9,215,893	8,151,426	17,405,902
1930	9,722,980	6,295,935	18,067,725
1931	10,285,582	5,575,727	15,908,266
1932	10,727,564	5,070,764	15,838,655
1933	10,313,070	4,700,803	15,060,157
1934	10,219,966	4,597,586	14,861,834

* Includes coasting trade, foreign trade, whale fisheries and cod and mackerel fisheries

⁵ J. E. Saugstad, Shipping and Shipbuilding Subsidies, Bureau of Foreign and Domestic Commerce, Department of Commerce (1932)

⁶ U. S. Bureau of Navigation and Steamboat Inspection, Merchant Marine Statistics, 1934

Although American vessel tonnage increased considerably between 1900 and 1913, a small number of ships were constructed for the foreign trade, and of the total number constructed, many were designed for employment on the Great Lakes where the carriage of ore and other bulk cargoes was growing rapidly. In 1913, Great Britain launched about 2,000,000 gross tons and the United States somewhat less than 300,000.

INFLUENCE OF THE WORLD WAR UPON SHIPBUILDING

With the outbreak of the World War in the summer of 1914, there came a demand for vessel tonnage that eventually led to the most feverish period of shipbuilding activity in history. Shortly thereafter, the American government, for the first time, became a large scale builder and operator of merchant ships. While the war was responsible for the demand for vessels, the separate factors may be listed as follows:

- 1 The virtual withdrawal of the German merchant marine from international trade due to the preponderant strength of the British navy. At this time merchant vessel tonnage under the German flag, 5,459,000 gross tons, was second only to that of Great Britain.¹

- 2 Transportation of war supplies for the allied nations demanded the concentration of shipping in the North Atlantic. Normal trade between neutral countries suffered as a consequence, and in most instances was greatly hampered because cargo space was not available.

- 3 The destruction of merchant ships was staggering after the inauguration of the German submarine campaign. During the month of April, 1917, tonnage losses traceable largely to submarine activity, totaled 866,600 and for the entire year exceeded 6,000,000 gross tons.

- 4 The participation of the United States in the conflict required the transportation of a vast army of 2,250,000 men to Europe and the carriage of supplies and munitions necessary for the effective maintenance of the army.

At the outbreak of the war, the American shipbuilding industry faced a discouraging outlook. In the year ending June 30, 1915, only 225,000 tons of merchant vessels were launched.

¹ *Lloyd's Register*

In the summer of 1915, the shortage of vessel tonnage throughout the world stimulated activity and shipyards in the United States soon obtained many contracts from American ship-owners. In addition, the inability of Great Britain to construct sufficient ships for her own needs diverted to American yards shipbuilding contracts from British shipping companies and from companies in neutral nations, such as Norway, for which Great Britain had previously constructed merchant vessels. Within a short time, foreign governments also contracted for ships with American builders.

Until the middle of 1917, shipbuilding in the United States remained in the hands of private interests. The stimulus of the first two years of the war increased tonnage under construction, or contract for construction in this country, from 143,000 gross tons on July 1, 1914 to 1,225,000 gross tons on July 1, 1916. Inability of private yards to cope with the tremendous demand led to the adoption of a governmental shipbuilding program and to the requisitioning of tonnage under construction in private yards. The initial appropriation for shipbuilding in the Act of June 15, 1917, made available \$500,000,000. An additional sum of \$250,000,000 was appropriated for purchasing or acquiring plants, materials and ships already built or under construction. Later increases in funds for the purchase of ships and the purchase and construction of shipyards increased the shipbuilding and acquisition appropriations to a total of \$2,884,000,000 by July 1, 1918. The magnitude of the task is more amazing when the fund is compared with the estimated value of world shipping at the beginning of the war. At that time, 1914, according to a reliable estimate, the value of all ocean-going vessels was not in excess of \$1,450,000,000 or but slightly more than one half the amount appropriated for shipbuilding by the government of the United States.⁸ During the first fiscal year of government participation, July 1, 1917 to June 30, 1918, the vessel output reached 1,300,000 gross tons, and in the following twelve months it had grown to 3,326,000 gross tons.⁹ Although the signing of the Armistice in November 1918 ter-

⁸ J. A. Salter, *Allied Shipping Control*, Carnegie Endowment for International Peace (1921).

⁹ Annual Reports of United States Shipping Board.

minated the war, the shipbuilding program of the United States had assumed such momentum that vessels continued to glide from shipways in great numbers throughout the years 1919, 1920, 1921. The launching of a great volume of tonnage in each of the two years following the Armistice was due to a provision in the Merchant Marine Act of 1920 which authorized the United States Shipping Board to continue construction begun under war time legislation if such construction was, in the opinion of the Board, "for the best interests of the United States." The program was thus at the highest point of development when the conflict came to a close in November, 1918, and during the following twelve months all records were broken. During 1918 and 1919, truly sensational records were made. The collier *Tuckahoe*, of 5,500 dead-weight tons, was launched 27 days after the laying of the keel, and was delivered to the United States Shipping Board ten days later. There were many other examples of speedy building, including the launching of the 12,000-ton freighter *Invincible* 31 days after keel-laying, and the launching in one day of five ships aggregating 38,000 dead-weight tons at the government owned Hog Island yard on the Delaware River. Upon completion in May, 1922, the construction and acquisition program of the government had added 2,311 vessels of 13,627,000 dead-weight tons to the American merchant fleet.¹⁰ The fleet included 384 requisitioned steel ships, and 589 wooden ships, the latter were expected to be of no more than temporary usefulness and were given little consideration in the post-war shipping problem created by the unequalled growth of world vessel tonnage.

Frequent expressions of appreciation regarding the contribution of America have been given by the allied nations. In a surprisingly short time, construction facilities had been increased from 51 yards with 232 shipways in April, 1917, when the United States entered the war, to 223 yards containing 1,099 ways at the time the Armistice was signed.¹¹ Spurred on by the seriousness of the situation the United States, from a negligible position as a shipbuilding nation in 1914, was launching vessels at a pace never before equaled. Despite the absence

¹⁰ Annual Report of United States Shipping Board (1922)

¹¹ E. N. Hurley, *The New American Merchant Marine* (1920)

of facilities and experienced personnel, the success of the program was one of the outstanding industrial accomplishments of the war. It was made possible by the initiative and organizing ability of the American people and by certain other factors that made possible the application of these characteristics:

1 Declaration of war by the United States came at the height of, and largely because of, the German submarine campaign. For the time, at least, ships were probably of greater importance to the allied cause than men and munitions because the maintenance of the armies already in the field was endangered by lack of shipping facilities for the transportation of supplies.

2 The steel production in the United States was greater than that of any other nation, and a large part of it was readily divertible to shipbuilding.

3 Neither labor nor resources had yet been depleted by the war.

4 Experience in methods of mass production in all phases of industry supplied a valuable background for production in large volume.

5 Actual construction was simplified by the standardization of vessel types and by the adoption of a fabricating system by which steel plates, beams, and scores of the component parts of ships were completed in the steel mills and other factories for shipment to the various yards where they were assembled after little or no further processing.

Summarized, the deliveries of vessels to the government from August, 1917, to May, 1922, were as follows:

Year	Vessels	Dead Weight Tons
1917 (Aug. to Dec.)	50	305,215
1918	533	3,025,806
1919	1,180	6,884,423
1920	473	3,129,587
1921	72	743,300
1922 (Jan. to May)	3	39,000
TOTAL	2,311	13,627,311

It may be seen that the United States Shipping Board saw fit to complete a great many vessels under authority delegated to it in the Merchant Marine Act of 1920

SHIPBUILDING IN THE UNITED STATES SINCE 1920

GOVERNMENT AID

Throughout the period of the war and for two years thereafter the emergency building programs of various nations, particularly that of the United States, called for large additions to the merchant vessel tonnage of the world. War losses totaling 12,543,000 gross tons were insufficient to prevent a large growth in merchant shipping.¹² World tonnage of steam and motor vessels of 100 gross tons or over, which was 45,273,000 in 1914, became 61,780,000 in 1922 largely because (1) the submarine menace to allied shipping was eventually controlled, (2) many vessels building or under contract at the end of the war were completed. Assuming the existence of an adequate world merchant marine in 1914, as evidenced by the general level of freight rates at that time, it was to be expected that the shipbuilding industry would not prosper for some time after 1920, because the war-time addition of several millions of tons provided a large surplus beyond the needs of international trade. This was particularly true in the United States.

The advantages to be gained from the possession of an adequate merchant marine in times of emergency were demonstrated both in the war with Spain and in the World War. When the Shipping Act of 1916 was passed, one of the purposes of the act was declared to be the development of "a merchant marine to meet the requirements of the commerce of the United States with its territories and possessions and with foreign countries." Again, in the Merchant Marine Act of 1920, the policy of the government was expressed as follows: "It is necessary for the proper growth of its foreign and domestic commerce that the United States shall have a merchant marine sufficient to carry the greater part of its commerce and serve as a naval or military auxiliary in time of war or national emergency."¹³ These laws

¹² Merchant Marine Statistics (1930), Department of Commerce, Bureau of Navigation.

¹³ Sec. I. The Act of 1928 affirmed this declaration of policy.

further declared it to be the policy of the United States to do whatever might be necessary to develop and encourage the maintenance of such a merchant marine. To make possible the desire expressed in these laws, certain definite provisions were incorporated in them to which the American shipping and shipbuilding industries owe whatever progress has been made since the end of the war. For half a century previous to 1916, the policy of the government of the United States was largely one of neglect. The abrupt change as reflected in the laws mentioned can be traced to the late war. At the outset, the conflict gave convincing proof of the trade advantages accruing from possession of an adequate national merchant marine, and later, when America joined the allied nations, it was directly responsible for the revival of shipping and shipbuilding in America. It was also recognized that the best interests of the country would be served by the eventual transfer to private interests of all future building and operating activities, and the Shipping Board was so instructed by Congress in the Act of 1920.

Two provisions of the law of 1920 were of vital importance to the shipping industry. Section 11 authorized the United States Shipping Board to set aside, from the revenue derived from the sale of government owned merchant ships over a period of five years, a sum not to exceed \$25,000,000. From this fund loans were to be made to American citizens for the construction of new vessels in domestic shipyards. The act was made more explicit by amendments in 1924¹⁴ and 1927¹⁵. The former extended, for another five years, the period during which funds from ship sales might be set aside by the United States Shipping Board, and prescribed interest rates to be charged upon construction loans made from the fund. When vessels were inactive or employed in the coastwise trade, 5¼ per cent interest was to be charged upon loans, loans upon vessels employed in the foreign trade bore interest at the rate of 4½ per cent. In addition to the advancement of funds for new construction, loans could be made for reconditioning and improving ships already in existence.

The amendment of 1927 removed the five-year provision, which confined additions to the loan fund to a definite period of time,

¹⁴ Public No. 205, 68th Congress, approved June 6, 1924.

¹⁵ Public No. 806, 69th Congress, approved March 4, 1927.

and authorized an increase in the fund to \$125,000,000. Continued existence of the fund was assured, repayments on loans were to be credited to the fund and not to the government treasury. As had been the case in the original act of 1920, the maximum amount that could be advanced was two-thirds of the cost of construction.

Unfortunately, the act of 1920 as amended was not of great value to the shipbuilding industry. The interest rates, while considerably below those available through private financing, were not, in themselves, enough to greatly stimulate shipbuilding. Loans, totaling \$18,629,500, were made up to February, 1927, for the construction of 15 vessels of 101,511 gross tons¹⁶. There was a world-wide surplus of vessel tonnage, and in the United States the surplus was relatively greater than in any other nation. In addition to the many ships operated by and for the United States Shipping Board, there were some hundreds of inactive vessels which were available for operation in the event world commerce increased sufficiently to make such operation profitable. Under these circumstances there was little hope that shipbuilding would be an attractive investment for private capital.

The Merchant Marine Act of 1928 greatly modified existing loan provisions. The available fund was continued at \$125,000,000 but authorization was granted for an increase of the fund to \$250,000,000, through credits from sales and by Congressional appropriation, no additional appropriation has yet been made. Three-quarters of the cost of the vessel may be borrowed and repaid any time within twenty years. Most significant was the lowering of the interest rate to that rate which equaled the lowest rate of yield to the nearest $\frac{1}{8}$ of one per cent on any government obligation issued subsequent to April 6, 1917, and outstanding at the time the loan was made, excepting postal savings bonds. In some instances outstanding government obligations yielded as little as $\frac{1}{4}$ of one per cent and naturally varied from time to time. This led to the repeal in 1931 of the interest fixing provisions of the Act of 1928 and to the establishment of $5\frac{1}{4}$ per cent as the rate applicable to loans upon

¹⁶ Report No. D. R. 1105 U. S. Shipping Board Bureau, Department of Commerce.

vessels in the coastwise trade or inactive, and $3\frac{1}{2}$ per cent upon vessels employed in the foreign trade

The radical reduction in interest charges between 1928 and 1931 and the adoption of a very liberal policy regarding the carriage of foreign mails were the major contributions of the Merchant Marine Act of 1928. Although Congress, in the Act of 1920, had authorized the Postmaster General and the United States Shipping Board to determine just and reasonable rates for the transportation of mails as an aid to "the development of a merchant marine adequate to provide for the maintenance and expansion of the foreign or coastwise trade,"¹⁷ payments were not large and few contracts were made because payments under the contracts were dependent upon subsequent appropriations by Congress.¹⁸

When the Act of 1928 was under consideration, it was realized that existing legislation afforded little hope of carrying out the declared policy of the government toward the merchant marine. There was need in particular for passenger liners, and combination passenger-cargo liners, because the war time construction program concentrated upon the building of cargo vessels. At the same time the American flag fleet of cargo carriers was becoming obsolete, particularly with regard to speed, when compared with newer ships built abroad and embodying the most modern improvements in design of hull and machinery. The more generous provisions mentioned above were incorporated in the law in the hope that the builders and operators of American flag-ships would be enabled to overcome these deficiencies.

The comparative benefits to the two classes of ships are discernible in the following table which summarizes construction and reconditioning activities to September 30, 1934, under the act of 1928. The combined benefits of construction loans and mail contracts have done much to overcome the deficiency in passenger vessels. Of a total of 43 new vessels completed or under construction as of August 31, 1934, 32 were designed to carry both passengers and freight, the remaining 11 consisted of nine tank-

¹⁷ Sec 5, Sec 7 permitted contracts to be made without regard to the Ocean Mail Act of 1891

¹⁸ Maximum payments in any year were less than \$2,000,000

ers and two freighters, but the latter were ocean going car ferries built to transport shipments in railroad freight cars between cities on the Atlantic and Gulf coasts and adjacent territory. Thus there have been no new general cargo carriers launched under the loan provisions of the act. For purposes of

CONSTRUCTION UNDER THE LOAN PROVISIONS OF THE ACT OF 1928 ¹⁹

Class	Number	Gross tons	Authorized Loan
New Vessels			
Combination	32	351,411	\$102,567,792
Freighters	2	16,122	2,378,794
Tankers	9	80,742	11,437,987
	—	—	—
TOTAL	43	448,275	\$116,384,573
Reconditioned Vessels			
Combination	22	170,526	10,178,692
Freighters	19	98,677	2,721,947
Tankers	1	10,780	422,154
	—	—	—
TOTAL	42	279,983	\$13,322,793
	—	—	—
TOTAL	85	728,258	\$129,707,366

new construction, loans aggregating \$116,384,573 have been made from the construction loan fund, since 1928, combination liners account for \$102,567,792 of this sum and the freighters and tankers mentioned for but \$13,816,781.

The reconditioning of existing general cargo vessels was a more attractive undertaking for operators of that type of vessel, but loans for modernizing such ships have likewise been far below those granted for the same purpose to owners of combination liners.

It can be said that the contracts for carrying the mails have been far more beneficial than construction loans to the shipbuilding industry.²⁰ Contract mail payments, although not so-called in the act, admittedly constitute a subsidy to American shipping. The volume of mail carried has no direct bearing upon the amounts paid to the various companies, size and speed of

¹⁹ Taken from U S Shipping Board Bureau, Report No D R. 1105, Sept 1934

²⁰ See Chap xiv

ships, length of the voyage, and frequency of service are the governing factors. In commenting upon the provisions of the act of 1928, Postmaster General Brown stated, in 1931, that payments under the new law are a subsidy, the purpose of which is to compensate American shipowners for three things,²¹ "(1) the much higher costs of ship construction in this country by comparison with construction costs in foreign shipyards, (2) the higher wages of American seamen, (3) the subsidies which other nations provide for their own vessels."

Because shipbuilding in the United States is dependent upon profitable operation of American flag vessels all three of these factors are of importance to the shipbuilding industry. Numerous estimates of construction costs in different countries are available. In some instances reliable estimates place the costs of cargo ship construction in the United States at 50 per cent above the cost of building similar vessels in Great Britain which is the greatest shipbuilding nation. Data prepared by the United States Shipping Board in the summer of 1933 depict the comparative costs in that country and the United States, currency depreciation is not accounted for in the estimates.

SHIPBUILDING DIFFERENTIALS UNITED STATES VS GREAT BRITAIN²²

Great Britain	United States	United States Disadvantage
Cargo ships, 100	151	51%
Tankers, 100	154	54%
Combination ships, 100	144	44%
Passenger ships, 100	130	30%

A lower and presumably more conservative estimate of the difference between the cost of constructing ships in American and British yards was made by experts of the Chamber of Commerce of the United States in 1925, and submitted to a National Mercantile Marine Conference held under the Chamber's auspices. The careful study then made showed that the cost of constructing a high-class combination passenger and

²¹ Postmaster General W. F. Brown, radio address, June 6, 1931.

²² Report of the Shipping Board members of the Reciprocity Committee appointed by the State Department to prepare data for the World Monetary and Economic Conference, 1933.

freight liner of about 18 knots in a British yard would be 78 per cent of the cost in an American yard, for a freight and passenger liner of 14 to 15 knots, British costs would be 75 per cent of the American, for an ordinary cargo liner of 12 knots, 70 per cent, and for a tanker of 10,000 to 12,000 tons capacity, 72 per cent. It was found that, in general, "Shipbuilding costs in American yards are on the average about 25 per cent higher than in British and other foreign yards"

Higher wage levels rather than cost of materials are largely responsible for the wide variance. Shipbuilding in normal times is not an industry to which the economies of mass production may be applied to a great extent, and labor costs are commonly more than 30 per cent of the total cost of a vessel. The high wage level of the United States, therefore, cannot be overcome by mechanization of the industry as has been true in the production of iron and steel, automobiles, and other products for which this country has provided accepted standards of mass production.

Wage levels are likewise a deterrent to the successful operation of American ships. Cargo rates in the foreign trade are determined largely by international competition, but the wages of officers and crew as well as subsistence costs are largely governed by the standards of living of the nation whose flag the vessel bears. Statistics compiled by the Merchant Fleet Corporation, which was charged with the operation of merchant vessels owned by the American Government after the World War, showed that average daily wage costs incurred in the operation of a cargo ship of 8,000 to 9,000 tons were \$100.00 per day under the American flag and \$65.00 per day under the British flag.²⁸ Ordinarily wage costs represented from 15 to 18 per cent of the total cost of the voyage. With allowances made for annual lay-up for overhaul and port inactivity during which the crew is reduced in number, wage payments averaged approximately \$1,000 more per month for the American vessel. Although subsistence costs are considerably less than wage payments the differential in favor of the British vessel was slightly more than \$2,300 per year.

²⁸ J. E. Saugstad, *Shipping and Shipbuilding Subsidies*

POLICIES AND PROBLEMS OF GOVERNMENT AID

Government aid to shipping is world wide. It has long been the declared policy of Great Britain, Germany, France, Japan, Italy and other prominent maritime nations. Aid by other nations increases the handicaps of construction and operation under the American flag. Unfortunately for the entire shipping industry, government aid has not followed a rational course in many nations. Competitive building is again comparable to that of the decade 1904-1914 when Great Britain and Germany vied with one another in super-liner construction. At the present time, France, Italy and Great Britain are completing construction programs which are indicative of the extent to which national merchant fleets are being created by government aid without particular regard for the fact that there has been an excess of vessel tonnage since the close of the World War. Just as nations disagree upon other international problems, they likewise disagree upon policies of government aid to shipping. National pride, national defense, foreign trade promotion and profits from vessel operation are the bases for liberality to the shipping industry. It is unlikely that there will be unanimity of opinion concerning the maritime needs of each of the leading nations, and, in the absence of any such understanding, competitive subsidizing will continue, with each nation striving to make possible the private construction and operation of what it considers to be an adequate merchant marine.

In the United States, the construction of cargo liners presents a major problem. If the government continues the present policy of liberal payments for the carriage of overseas mails, as provided for in the Merchant Marine Act of 1928, the construction of passenger vessels will probably continue at a satisfactory rate. This, however, is uncertain. Cargo ship construction is dependent upon the benefits of low interest rates charged for loans made from the construction loan fund. These benefits have not been sufficient to stimulate the building of cargo ships because the operating differential under the American flag is too great to be overcome in this manner. While the total tonnage of cargo vessels under United States registry is now adequate, provision must be made for the replacement of obsolete vessels. Foreign nations

have continued to build new and more efficient cargo ships in large numbers, but post war building in the United States has been confined almost entirely to passenger and combination liners and to the reconditioning of cargo ships constructed during and immediately after the World War. In the ten years between January 1, 1923 and August 31, 1934, American yards did not complete a single general purpose cargo carrier, while English yards built approximately 913, Germany 140, Japan 79, and France 57. In addition, these countries, with the exception of Japan, have built many passenger liners which exceed those under the American flag in both size and speed. Obviously a program of government aid must be adopted in the United States that will permit replacement of obsolete cargo ships now operating in competition with comparatively new vessels built abroad during the past ten years, otherwise there is every indication that the shipbuilding industry and the merchant marine will decline rapidly in spite of the declared intention of the government to foster and promote an American merchant marine.

Scrapping of superfluous and obsolete vessels has gone forward at a more rapid pace in the United States than in most countries. The high percentage of comparatively old ships remaining in the American merchant marine will make necessary replacement in considerable volume, when business conditions improve sufficiently to stimulate foreign trade. At that time, it is quite probable that operators of cargo ships will be able to take advantage of the construction loan provisions of the act of 1928 to a greater extent than heretofore. The problem of scrapping surplus vessels has been a particularly vexing one in the United States. Because our general-purpose cargo carriers were built more than ten years ago, obsolescence has come along to simplify matters, and eventually the older ships must be replaced regardless of the fact that such ships are available in ample numbers for the carriage of a fair share of the foreign trade of the nation. Their inefficiency becomes relatively greater each year due to the construction of many modern ships in other countries. If the combined effects of the return of prosperity, the necessity for replacements, and the construction loan fund are insufficient to make possible a revival of shipbuilding in the United States, the future is not bright for the industry. Naval construction, if

carried to treaty limits, will afford great assistance, provided a liberal share is assigned to private shipyards, but merchant shipbuilding is also essential for the maintenance of large, efficient, and economically operated yards in which costs of construction may continue at a reasonable level

Although the passage of the Vinson Bill in March, 1934, authorized a naval building program which would increase the United States Navy to treaty strength as provided for by the Washington and London limitation treaties of 1922 and 1930, construction as provided for in the new law is dependent upon future appropriations. The President expressed the hope that the world powers will agree to further reductions in naval forces. With the present administration favoring a limitation of armaments, it is not at all certain that the shipbuilding industry will derive great benefit from the Vinson law, but should the powers fail to renew or add to the limitations of the London Conference which expire in 1936, the industry will be encouraged by the assurance given in the new law of an equal division of new construction between navy and private shipyards. The practice of dividing naval construction between private yards and navy yards is sometimes criticized as inimical to the existence of the shipbuilding industry as a private enterprise, and contrary to the expressed attitude of Congress toward the shipping industry.

One disturbing factor in the construction of new cargo vessels in the United States is the tremendous increase in fixed charges that would result. The majority of American flag services were established by the United States Shipping Board after the war. Gradually the board disposed of these services and the vessels employed therein to private companies at very low prices per vessel ton. Thus, many companies purchased ships for a fraction of the cost of building new ones, and interest, insurance, and depreciation charges have been reduced in proportion. From the experience of the past few years it is quite likely that many operators of American lines will find it extremely difficult to assume the increase in fixed charges which will perforce accompany the addition of new vessels costing several times as much per ton as the ships now in service.

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CHAPTER XXXI

THE MERCANTILE MARINE POLICY OF THE UNITED STATES¹

THE mercantile marine policy of the United States Government has been changed from time to time, and has not always been directed toward the accomplishment of the same purpose. For many years shipping legislation was closely associated with the government's policy regarding domestic trade and industry, but a real effort is being made to promote the foreign trade. The growing need for foreign markets for American manufactures gradually directed the attention of the government to the need for a deep-sea merchant marine, and after 1914 the great World War created a demand for additional ocean tonnage, even in the well-organized ocean-carrying trade between the United States and Europe. The wholesale destruction of ocean shipping during the period of the war and the later surplus of tonnage, moreover, have largely influenced the shipping policy of the government.

EARLY POLICY OF SHIPPING PROTECTION

It is not feasible to define sharply the beginning and end of each period in the history of the government's maritime policy. The first era extends roughly from the adoption of the Federal Constitution to the year 1815, and was characterized by the policy of shipping protection. The country's trade at that time was largely international, and the government was desirous of promoting the foreign trade and deep-sea shipping.

The first federal tariff law, the Act of 1789, gave protection to shipping by providing that imports in American vessels should receive a discount of 10 per cent below the general import duties. In 1794, the law was so changed that imports in foreign vessels

¹ Many facts and several statutes referred to in this chapter are considered in other portions of the book. The purpose of the present chapter is to survey briefly, but systematically and as a whole, the general subject of the shipping policy of the United States.

were required to pay an increase of 10 per cent above the normal tariffs, but the effect of the statute remained unchanged. This form of protection to shipping was maintained until changed in 1815.

The Act of 1789 gave maximum protection to shipping engaged in the trade between the United States and the Orient. It imposed an import duty ranging from six to 20 cents per pound on tea imported directly from India or China in American bottoms, while a duty of 15 to 45 cents per pound was imposed on tea imported into the United States in foreign vessels. All other Oriental products imported in foreign vessels were required to pay a duty of 12½ per cent ad valorem, which was nearly double the rate levied on imports delivered in American vessels. Similar provisions were incorporated in various laws enacted up to 1830.

Shipping protection did not consist entirely of discriminating import duties. The early tariff laws aided American shipping by imposing discriminating tonnage charges against foreign vessels. The Act of July 20, 1789, provided that the tonnage tax on vessels built and owned in the United States and on foreign built vessels owned by American citizens, on and after May 29, 1789, should be six cents, on vessels thereafter constructed in the United States, but partly or wholly owned by foreigners, 30 cents, on all other vessels, 50 cents, and an act passed in 1804 levied a light-money tax of 50 cents per ton on foreign vessels, the rate being advanced to \$1.50 a ton in 1812.

The aid given shipping was modified in 1815, when Congress provided that discriminating duties in favor of American ships should no longer apply in the direct trade between the United States and those foreign countries that agreed to discontinue all discriminations against American vessels. The policy of discriminating duties was wholly abandoned in 1828, when Congress decreed that it should no longer apply either in the direct or indirect trade of the United States. After 1815 and 1828, reciprocity treaties were negotiated with most maritime countries, and in consequence the clauses of later tariff acts providing for a discrimination of 10 per cent against the vessels of foreign countries that made discrimination in favor of their national shipping were of no practical importance.

DEVELOPMENTS BETWEEN 1815 AND 1909-10

There were various reasons for the abandonment of protection to shipping. Congress evidently believed that the American marine engaged in the foreign trade had reached a position of such strength that it no longer needed the protection of discriminating import and tonnage duties, that it could, in fact, compete effectively against ships of foreign countries. Some members of Congress believed that the abandonment of shipping protection would benefit American shipping by causing the removal of foreign discriminations. The change in the treatment of shipping was also associated with the gradual modification of the tariff policy. The tariff act of 1818 gave protection to American industries, and, although modified at times, that policy has continued to the present time. The foreign trade came to be regarded as less important than it had been in earlier years and interest in the promotion of domestic trade and industry diverted public attention from the foreign trade and the registered merchant marine.

After shipping reciprocity had been adopted and American ships engaged in the foreign trade were no longer aided by discriminating duties, the merchant marine was allowed for a time largely to shift for itself. Economic conditions were favorable to the development of American deep-sea shipping. The relative proportion of the value of foreign trade carried in American vessels gradually fell from 89 per cent in 1800 to 66.5 per cent in 1860, but the aggregate registered tonnage in the foreign trade increased from 824,000 tons gross in 1815 to 2,497,000 tons in 1861. During and after the Civil War the registered tonnage of the merchant marine declined steadily until 1911, in part, because of the governmental policy that prevailed, but even more largely because of the changing economic conditions.

After shipping protection was abandoned, the government did not consistently follow a definite policy regarding the registered merchant marine. In some ways shipping was assisted and in others it was retarded. The following may be mentioned among the measures of shipping promotion that were attempted:

The bounties granted to certain cod-fishing vessels after 1792 were continued until 1846 as drawbacks on the import duties on

the salt used in preparing the fish. In accordance with the law of March 3, 1845, moreover, mail subsidies were granted from 1847 to 1858. The largest sums were paid to the Collins Line, but smaller amounts were appropriated for the establishment of lines of mail steamers to operate to Bremen, Havre, Havana, and to Colon (then Aspinwall). Subsidies were also paid to the Pacific Mail Steamship Company for an Oregon service connecting at Panama with the line from New York and making stops at San Diego, Monterey and San Francisco. The total amounts paid in subsidies during the period 1845-58 were approximately \$14,500,000. These payments caused the construction of several large steamships and the establishment of a number of important lines. The results, however, were not of permanent value, because the policy was completely withdrawn at the time when the registered merchant marine in the United States most needed assistance.

The mail subsidy policy was temporarily revived in 1865, and several relatively small contract mail payments were authorized between that date and 1873, when the policy again was abandoned. The last of these contracts expired in 1877. It was during this period that the Pacific Mail Steamship Company received contracts for a monthly service to Japan and China and for a service to the Hawaiian Islands. Another contract was made with a steamship line for a monthly service between Philadelphia and Rio de Janeiro.

After 1873, no direct ship subsidies were authorized by the United States Government until 1891, when a mail contract act was enacted. After 1891 six or seven steamship lines received mail payments in excess of the amounts they would have received had they not operated under mail contracts. The amounts authorized by this statute, however, were too small to stimulate the growth of the American merchant marine.

Throughout the period since 1815, the Federal Government has promoted American shipping in the foreign trade in various indirect ways. The commercial treaties negotiated with many countries were a form of indirect aid to shipping, in that they brought about the abandonment of discriminating import duties and tonnage taxes in foreign countries and paved the way for a larger foreign trade. Trade reciprocity treaties, moreover, were

negotiated with various countries—with Canada in 1855, with the Hawaiian Islands in 1876, and with Cuba in 1903, and many reciprocal trade agreements were entered into under the McKinley Act of 1890 and the Dingley Tariff Act of 1897. These reciprocity treaties and agreements were a form of indirect aid to shipping, their purpose being to increase the volume of the foreign trade. Large sums were annually expended in the improvement of rivers and harbors, in promoting the safety of navigation and in developing foreign trade and shipping through executive departments and bureaus. The tonnage taxes of the Federal Government since 1868 have been so low as not to constitute a burden upon shipping, and relatively little regulation of ocean charges and services or of the relations between ocean carriers was attempted. Except for the passenger act of 1882, as amended, and the immigration laws, ocean carriers engaged in the foreign trade were practically free from regulation as regards charges and services.

While the government aided American shipping in various ways, it also hampered the growth of the registered merchant marine. Until 1912 American registration was denied to foreign-built ships, the only exceptions being (a) "vessels which may be captured in war by citizens of the United States, and legally condemned as a prize, or which may be adjudged to be forfeited for a breach of the laws of the United States, being wholly owned by citizens", and (b) foreign-built vessels wrecked in the United States, and purchased and repaired by American citizens, provided "the repairs put upon such vessel are equal to three-fourths of the cost of the vessel so repaired."

The cost of securing ocean-going vessels from American shipbuilders was, for all types of ships, above the prices at which the ships could have been purchased in Great Britain. Under these conditions, it was difficult for American-built ships to compete with those built abroad, and the increase of the registered merchant marine of the United States was consequently discouraged.

Congress burdened American shipping unnecessarily for a number of years after the close of the Civil War. By the law of February 10, 1866, Congress refused to permit vessels that had been transferred to foreign standards during the war to be readmitted to American registry. This law did not benefit the ship-

building industry and was against the public interest, because it checked the increase in the tonnage of the registered merchant marine. Another mistake was made by Congress in waiting until 1868 to repeal the heavy revenue taxes that had been placed upon shipping during the war period. Although requiring registered vessels to be American-built, shipbuilders were not given the privilege, until 1872, of importing duty free the materials to be used in constructing and equipping wooden vessels for the foreign trade, and it was not until 1890 that Congress exempted from duty materials to be used in constructing iron and steel vessels for use in international commerce. It is not probable that the shipbuilding and merchant marine industries would have gained much by an earlier exemption from duties on materials employed in constructing vessels for the foreign trade, but whatever effects the duties had were against our shipping interests.

The laws and rules of the United States concerning the measurement of ships burdened American vessels in that they provided a net tonnage in excess of that assigned to British vessels. The measurement system adopted by an act of May 6, 1864, was practically the same as Great Britain had adopted by her Merchant Shipping Act of 1854, but the act of 1864 made provision only for the determination of gross tonnage. Until 1882, tonnage taxes and other ship charges in the United States were levied upon gross instead of upon net registered tonnage, as in Great Britain. After 1882, the ascertainment of net registered tonnage was provided for by the laws of the United States, and tonnage and other levies were based upon net tonnage, but until 1915, the American measurement rules were less liberal than those of Great Britain, the net registered tonnage of American vessels being greater than for British vessels of the same dimensions.

The laws of the United States were stricter than the laws of foreign countries as regards the treatment of crews and the safety of vessels at sea. This action on the part of the United States was justifiable. Whatever the needs of the registered merchant marine may be, the government should safeguard the seamen and try to increase the safety of navigation.

After 1817, the coastwise traffic along the seaboard and on the Great Lakes was open only to American vessels. Indeed, from

1789 to 1817, foreign ships, although not prevented by law, were seldom able to engage in the coastwise business because American ships could usually perform the service better and cheaper than could their foreign rivals. The act of 1817 has done more than any other law for the American ship-building industry and for domestic shipping. The coastwise and Great Lakes merchant marine, being protected from the competition of foreign vessels, has grown with the increase in the demands for transportation. Coastwise and Great Lakes vessels have also been exempted from the payment of tonnage taxes, and steamships engaged in the domestic trade are not subject to the compulsory state pilotage laws to which vessels in the foreign trade and sailing vessels are required to submit.

As has been stated in Chapter XXX, the ship-building industry from 1815 to 1910 was aided in four ways:

First, the registry statutes which barred foreign-built vessels from American registry were intended primarily to assist American shipyards, although in later years they failed to accomplish this purpose. Second, the limitation of coastwise and Great Lakes shipping to American-built vessels did much to promote the ship-building industry. Third, Congress gave shipbuilders the advantage of permitting them to import duty free such foreign materials as they desired to use in constructing or repairing vessels, whether the vessels were to be sold to foreigners, or to be sold to citizens of the United States to be "employed in the foreign trade, including the trade between the Atlantic and Pacific ports of the United States." The value of these exemptions from the payment of duty on imported materials was, however, greatly lessened by the stipulation that vessels receiving these benefits "shall not be allowed to engage in the coastwise trade of the United States more than two months in any one year." Fourth, the naval policy of the United States Government during the last twenty-five years of this period was of great assistance to shipyards located on the seaboard. Most government vessels were built in private shipyards under direct orders from the government. The construction of these war vessels enabled shipbuilders to modernize their plants and encouraged them in establishing new yards, such as those at Newport News, Camden and Fore River. The relatively large naval tonnage constructed for the

United States was carefully distributed among the shipyards on the Atlantic and Pacific coasts, the government work required the steady employment of many thousands of men, and developed a large body of skilled mechanics and a corps of naval architects.

The merchant marine policy of the United States during this period was on the whole liberal, but so far as the foreign trade and registered marine were concerned, it was not a direct and positive policy. Foreign competitors gradually secured the share of the general ocean-carrying trade of the world that had formerly been conducted in American vessels, and in time became the carriers of nine-tenths of the foreign commerce of the United States.

LEGISLATION SINCE 1909 REGARDING THE MERCHANT MARINE IN THE FOREIGN TRADE

After 1909 and 1910, the trend of government policy and of public opinion was toward the foreign trade, and this gave rise to a greater interest in the registered merchant marine. The tariff acts of 1909 and 1913 both aimed to promote the foreign trade, although the former embodied the policy of protection to American industries and the latter brought about a reduction in the import duties on many commodities. They indicate that both those in favor of a high protective tariff and those who believed in a less degree of protection were desirous of increasing the country's foreign commerce. The laws differ in method rather than in intent. The tariff act of 1909 aimed to promote foreign trade by applying the double tariff policy, the import duties to be lower on goods from countries that made no discriminations against United States products. The act of 1913 abandoned this method of increasing the foreign trade and substituted a policy embodying reduced import duties and a provision for reciprocity treaties.

Some of the measures affecting the merchant marine engaged in the foreign trade that were adopted during the period prior to 1909-1910 were continued or extended. Appropriations for rivers and harbors were continued. The government adopted additional measures to increase the safety of navigation, to promote foreign trade and to assist the shipping business. By the act of August 5, 1909, the tonnage taxes of vessels entering from

foreign ports in North America, Central America, the West Indies, the Bahamas, the Bermudas, the Caribbean coast of South America, or from Newfoundland, were reduced from three to two cents per ton, and the maximum annual tonnage tax from 15 to 10 cents per ton. By the act of March 8, 1910, vessels entering otherwise than by sea from a foreign port at which no tonnage or lighthouse dues or equivalent taxes are imposed upon American vessels, were entirely exempted from the payment of tonnage taxes. With these exceptions the tonnage taxes on ships entering from foreign ports remain at six cents per net register ton at each entry, with a maximum of 30 cents per ton per annum.

Laws regarding the welfare of crews on board American ships and the safety of vessels at sea were greatly extended after 1909. Statutes increasing life-saving appliances and requiring wireless telegraphy were enacted. The Seamen's Act of March 4, 1915, which fixed the proportion of the deck crews that must have a rating of able seamen, and provided that not less than 75 per cent of the crew of vessels subject to the Seamen's Act must be able to understand any orders given by the officers, called forth much complaint on the part of American navigation companies operating in the foreign trade. These provisions burdened American shipping, particularly on the Pacific Ocean, without measurably increasing the safety of navigation or the welfare of American sailors.

Various laws concerning the merchant marine in the foreign trade were enacted from 1910 to 1920. The Mail Contract Act of 1891 was supplemented by an act of March 3, 1917, which authorized the postmaster general to contract for the operation of fast mail ships between the United States and Great Britain and to pay them at rates not exceeding \$8.00 per mile for each outward voyage. The vessels operating under such contracts were to have a gross tonnage of at least 35,000 and a speed of not less than 30 knots per hour. There were no vessels of that speed then in the transoceanic service. The law was an idle gesture. The registry laws were so changed in 1912 and 1914 as to provide for "free shipping" in the foreign trade. American citizens or corporations may now purchase ships anywhere in the world, if the ships are not more than five years old, and register them under the American flag for the foreign trade. This law has

also been of little effect. The United States rules for the measurement of tonnage were so revised in 1915 by the United States Commissioner of Navigation that American vessels were no longer at a disadvantage in the payment of tonnage taxes and vessel charges. With certain exceptions the United States rules for the measurement of gross and net tonnage are now like those of the British Board of Trade.

An effort was made in the Tariff Act of October 3, 1913, to revive a part of the old policy of shipping protection. That law provided that

A discount of 5 per centum on all duties imposed by this Act shall be allowed on such goods, wares, and merchandise as shall be imported in vessels admitted to registration under the laws of the United States. Provided, That nothing in this sub-section shall be so construed as to abrogate or in any manner impair or affect the provisions of any treaty concluded between the United States and any foreign nation.

Inasmuch as the United States had entered into treaties with most of the maritime countries of the world agreeing not to levy discriminating duties, this provision of the act of 1913 was never enforced, it having been held invalid by the United States Supreme Court.

The attempted return to shipping protection contained in the Tariff Act of 1913 was not regarded by the authors of the act as the mainstay of the government's merchant marine policy. The outbreak of the World War, in August 1914, gave rise to an acute need for ocean tonnage. Pressure was brought upon the government to purchase and operate ships, and the Shipping Act of September 7, 1916 made this possible as an emergency measure.

The Shipping Act of 1916 was the first United States statute to embody a general mercantile marine policy. Subsequent laws have developed the policy to its present incomplete stage of evolution, but the Act of 1916 laid the foundation upon which the fabric of legislation for the government promotion and regulation of American shipping upon the high seas is being built. The statute originated in an investigation into shipping combinations authorized by resolutions adopted by the United States House of Representatives in 1912 and conducted by the Commit-

tee on Merchant Marine and Fisheries with the expert assistance of Professor S S Huebner The investigation was broadened to cover government regulation of ocean carriers, and in making its report the committee submitted a bill which passed the House of Representatives in the session of 1914-15 and probably would have been favorably acted upon by the Senate had that body not been prevented from voting by a filibuster to kill another measure

During the year 1915-16, it became increasingly probable that the United States would become involved in the World War, and Congress, under the leadership of the Secretary of the Treasury, William G McAdoo, who was the spokesman for the administration, rewrote the Shipping Bill, devoting the first half of it to provisions authorizing the President, at his discretion, as an emergency measure, to requisition, construct or purchase vessels and to operate them The President was to function through a Shipping Board which was authorized to form "one or more corporations for the purchase, construction, equipment, lease, charter, maintenance and operation of merchant vessels in the commerce of the United States " This made possible the creation of the Emergency Fleet Corporation through which the Shipping Board functioned in the exercise of the powers by which it brought into existence and operated the shipping required to meet the emergency situation created by our participation in a war in Europe

The task of creating and operating ships occupied the time and energies of the Shipping Board and the Emergency Fleet Corporation while the United States was in the World War Indeed, when the Armistice came, the government was in the midst of a large ship construction program which was curtailed as much as possible, but which had to be carried out in part, with the result that the ships acquired during the war and constructed during and after the war gave the government possession of more than 12,000,000 tons gross of ships consisting mostly of standardized and hastily constructed freight vessels of about 12 knots speed The limited number of higher-grade combination freight and passenger ships could be, and were, sold, and some of the freight vessels were purchased by shipping companies. The government was, unfortunately, dilatory in selling

vessels, and in any event there would have been a market for only a minor share of the total tonnage

The government having the vessels, Congress and the Shipping Board decided to establish freight lines from the major ports of the United States to different parts of the world. The Emergency Fleet Corporation (later given the title of the Merchant Fleet Corporation) operated some of the lines, while others, and eventually most of them, were entrusted to companies which operated them under agreements that were changed in form as experience was gained but which protected the operating companies from loss. Some of the lines were profitable and were sold to private companies, others were operated at a loss causing the Shipping Board to have annual deficits that were met by congressional appropriations. By consolidations that reduced the number of government owned lines, by the recasting of operating agreements, by scrapping unsalable ships, and by the sale of lines and of vessels that was made possible by the prosperous times that prevailed up to 1930, and by the liberal mail subsidies granted by the United States under the Act of 1928, the Shipping Board reduced the annual deficits, the government's contribution in aid of shipping being in large part now given as mail subsidies.

The regulatory provisions of the Shipping Act of 1916 received but little attention while the Shipping Board was devoting itself to the task first of creating, then of operating and thereafter of selling, the large tonnage of vessels that the war had caused the government to acquire. The main purpose of the Act of 1916 was the government regulation and promotion of the merchant marine, and, when the government shall have disposed of its fleet, which will presumably be in the near future, the affairs of the Merchant Fleet Corporation can be brought to an end and the Shipping Board's successor, the Shipping Board Bureau of the United States Department of Commerce (or the authority that may take its place), can give its entire time and thought to carrying out the regulatory and promotive provisions both of the Act of 1916 and also of the Merchant Marine Acts of 1920 and 1928 as they may be and probably will be amended and supplemented. The significant regulatory provisions of the Acts of 1916 and 1920 are stated in the following chapter on

the Federal regulation of the services and rates of carriers by water in foreign and domestic commerce and need only be referred to in this survey of the mercantile marine policy of the United States

Two sections of the Merchant Marine Act of 1920 would have changed the mercantile marine policy of the United States had they been enforceable and enforced Section 28 prohibited railroads and other carriers engaged in interstate commerce from charging lower inland rates on exports and imports than upon like domestic traffic, unless the exports and imports were transported on the ocean in American vessels This prohibition was to be carried out by the Interstate Commerce Commission, but was not to be so enforced at ports where the Shipping Board was of the opinion that American shipping was not able to serve commerce adequately The section has been a dead letter, because, if it had been put into effect, the handicap upon foreign commerce would have more than counterbalanced the benefits received by American shipping

Section 34 of the Merchant Marine Act of 1920 has also been of no effect By this section Congress "authorized and directed" the President to notify foreign governments of the termination of the provisions of treaties "which restrict the right of the United States to impose discriminating customs duties on imports entering the United States in foreign vessels" President Wilson and his successors have held that to carry out this mandate would cause the United States to violate its treaties Moreover, it was the view of President Wilson that the power to negotiate treaties or amendments to treaties is vested by the Constitution in the president who is not, in the exercise of his discretion, subject to the orders of Congress The policy of imposing discriminating duties was abandoned by the United States by actions begun in 1815 and completed in 1830 and has not been revised and ought not to be Discriminating duties provoke prompt and effective retaliation by foreign countries

THE ACT OF 1928 AND ITS RESULTS

The Merchant Marine Act of May 22, 1928 was adopted, as its title states "To further develop an American Merchant Marine, to assure its permanence in the transportation of the foreign

trades of the United States, and for other purposes " One purpose of the Merchant Marine Act of 1920 had been to hasten the sale of government owned ships and the retirement of the government from the shipping business, but the Act of 1928 sought to put brakes upon such action by providing that

The United States Shipping Board shall not sell any vessel or line of vessels except when in its judgment, the building up and maintenance of an adequate merchant marine can best be served thereby, and then only upon the affirmative vote of five members of the board duly recorded

The board was given additional power to remodel and improve vessels owned by the United States and was "directed to present to Congress from time to time recommendations setting forth what new vessels are required for permanent operation under the flag of the United States in the foreign trade," in order that Congress might provide funds for construction and replacement

These provisions of the Act of 1928 seem to indicate a return to a policy of keeping the government indefinitely in the shipping business, but not long after the Act was passed, the decline in foreign trade, the increase in idle tonnage—both of private and government vessels—and the decreasing public revenues created a definite public sentiment against government ownership and operation of vessels, and the Shipping Board was under pressure to dispose of its vessels and sell its operating lines as soon as possible On account of the business depression and the consequent increase in idle tonnage, the Shipping Board was not able to dispose of its vessels and services as rapidly as the public desired, and for this and other reasons the board became unpopular, and in 1933 its duties were taken from it and transferred to the Department of Commerce Another reason was the program of Congress and the President to reduce the expenses of government by a reorganization of administration where practicable

The provisions of the Act of 1928 as to loans by the Shipping Board to aid private owners in securing the construction of new vessels and the improvement of existing vessels increased the loan fund from \$125,000,000—the amount authorized by the Merchant Marine Act of 1920—to \$250,000,000 The origin and

provisions of this loan fund and the loans that have been made from the fund have been stated in Chapter XXX in the discussion of government aid to shipping. As was stated in that chapter, the very liberal mail contracts authorized by the Act of 1928 and the loans from the construction fund have brought about the addition of a large number of high type vessels to the American Merchant Marine.

Most of the new vessels constructed with the aid of loans, and the majority of the ships reconditioned with the assistance of such funds, consisted of combination passenger and cargo vessels, i e., ships that meet the requirements for carriage of the mails. In May, 1933, 44 contracts for ocean mail service had been made under the terms of the Act of 1928, and, by the end of the fiscal year (June 30) 1932, subventions amounting to \$63,620,000 had been paid. The total amount payable from July 1, 1928 to April 15, 1943 will be \$328,600,000 or about \$22,000,000 a year, if the contracts as made are carried out and are not modified. Routes and itineraries may be altered by agreement.

Since 1928, there has been a reduction in the volume of foreign mails, and reduced government revenues and increased expenses have so unbalanced the national budget that there is much opposition to the mail subsidy policy embodied in the Merchant Marine Act of 1928, and there is talk of modifying the contracts. It is to be hoped that whatever is done, there will be no violation of an agreement. A contract, when legally executed, whether made by government, banker, manufacturer, merchant or farmer should be regarded as a sacred obligation to be carried out if and when possible.

The construction loan provisions of the Acts of 1920 and 1928, and the subventions or subsidies that are being given to a large number of American lines for the carriage of ocean mail and for the other services that are required of the lines thus aided, have unquestionably been of much assistance to the merchant marine at a time when such help was greatly needed to enable lines under the American flag to compete with those of foreign registry. It may well be that the reduced revenues and the enlarged expenses of the government resulting from the prolonged business depression that started less than two years after the passage of the Merchant Marine Act of 1928 would not justify the

adoption in 1935 of as liberal a policy of mail subsidies as was inaugurated by the Act of 1928, and that the provisions of that Act should be so changed as to reduce the amount and basis of the rates payable under future contracts made with American steamship lines for the maintenance of the services specified in the contracts

There probably will be general agreement that a successful and developing American merchant marine comparing favorably in size and service efficiency with the merchant marines of the leading commercial and maritime competitors of the United States is desirable, and that such an American marine in foreign commerce cannot under present conditions be successfully brought into existence, maintained and enlarged by private capital and enterprise without government cooperation and assistance. The debatable questions are what specific form should government aid take, and how much may justifiably be taken from the public treasury and the taxpayers of the country to bring about the development of an American merchant marine strong enough to hold its own in successful competition with foreign shipping and to expand with the growth of the international trade of the United States.

Mail payments as provided for by the Act of 1928 are subsidies in fact, though not in name. They constitute an indirect and unbusinesslike method of subsidizing shipping. The general policy of the government in aiding the merchant marine should be to decide what regular line services under the American flag from the leading ports of the United States to foreign countries are needed in the interest of the foreign trade of the country. Such government aid should be given to selected lines as will enable the desired services to be performed. Lines which carry ocean mail should receive a reasonable compensation, based upon the cost of the service. Subsidies should not be granted, through mail payments, but should be given to offset the higher costs of constructing and operating American ships as compared with foreign ships.

SHIP SUBSIDY POLICY APPROVED BY PRESIDENT ROOSEVELT, 1934

On the 13th of March, 1934, with the authority of President Roosevelt, the Secretary of Commerce, Daniel O. Roper, sub-

mitted to the chairman of the Committee on Merchant Marine, Radio and Fisheries of the House of Representatives, a report upon ship subsidies prepared by Henry H. Heumann then serving as Director of the Shipping Board Bureau of the Department of Commerce. The policy recommended by Mr. Heumann might well be adopted by the government. His recommendations, in summary, were as follows:

1 The present system of linking subsidies with the carrying of mail should be abandoned, and in its place specific subsidies granted for the maintenance of essential services should be given. Such subsidies should not be extended to lines in the protected trade.

2 Subsidy contracts should be based on the differentials in building and operating costs, should be sufficiently flexible to permit of equitable readjustments as changes in conditions occur, and should provide for necessary replacements.

3 Subsidies should be divided into four classifications:

(a) Construction differential subsidy

(b) Operating differential subsidy

(c) Trade penetration subsidy

(d) Other conditions bearing on the issue, such as foreign subsidies, etc.

4 Money for subsidies should be appropriated from general treasury funds, and not, as at present, provided indirectly through some other department of the government.

5 Subsidies should not be granted to more than one line competing in the same trade route without the business volume justifies it. We, of course, would not wish to limit sound competition, but destructive competition should not be aided through subsidies.

6 The preceding proposals contemplate uniform cost information at all times available to the government, and regulatory power over subsidized lines or construction companies.

7 Administration of subsidies. Subsidies to be recommended through a joint committee of experts, representing government departments having a direct interest in the development of the merchant marine. It is suggested that a representative of the department of commerce, state, treasury and navy departments would effectively coordinate the government's interest. The actual administration of each subsidy contract once entered into, however, should rest in the department of commerce.²

One thing is quite certain. It is desirable that the government should, as soon as practicable, be gotten out of the business of owning and operating ships in competition with private enter-

² Or with the Interstate Commerce Commission, if it should be given authority to regulate carriers by water.

prise Government, at least in a country where democratic institutions and representative government are the ideal, is not an efficient business organization. The government may and should formulate and enforce the standards and rules to be observed in the conduct of business—it may regulate commerce and carriers—but it should not substitute its own management of business in place of private initiative and enterprise. President Hoover wisely sought to hasten the termination of the government ownership and operation of ships, but he did not receive the support of Congress. Fortunately, his successor, in the President's office was given a free hand to make any changes in administrative agencies, one effect of which will probably be to bring about an earlier retirement of the government from the ownership and operation of ocean shipping than would otherwise have taken place, although it is not yet certain just what will result from doing away with the Shipping Board and transferring its powers and duties to the Department and Secretary of Commerce.

Mercantile marine policy—the relation of the government to the merchant marine—has two phases or purposes, one is aid or promotion, the other is regulation. In the United States, government aid has varied in form and scope from time to time. The policy followed has been a changing, uncertain and vacillating one, and it is probable that the present policy will be altered in the near future. Definite government regulation of carriers by water began in a rather tentative way in 1916 and has since then been somewhat modified and extended. The last step forward was taken when the Intercoastal Shipping Act of March 3, 1933 (the Copeland Act) was approved. As will be explained in the following chapter this law has given publicity and greater stability to the intercoastal carriers. It gives grounds for hope that, as the mercantile marine policy of the United States develops, it will provide more adequately than at present for the regulation of transportation by water. The brief survey here made is sufficient to indicate that the mercantile marine policy of the United States is still in the process of evolution.

REFERENCES

The statutes referred to in the text are the main sources of information. The Interstate Commerce Act, Sections 1 and 15, The Seamen's

Act of 1915, The Shipping Act of 1916, the Merchant Marine Acts of 1920 and 1928, and the Intercoastal Shipping Act of 1933

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CHAPTER XXXII

FEDERAL REGULATION OF THE SERVICES AND RATES OF CARRIERS BY WATER IN FOREIGN AND DOMESTIC COMMERCE

CARRIERS by water, by ocean, lake, river or canal, are engaged in services upon which the public is dependent. Their business and the capital invested therein are "vested with a public interest." Like railroad and electric railway companies, carriers by water are public utilities. As such their services and charges therefor are subject to government regulation and the scope of authority that the states and the Federal Government may exercise has been well defined by constitutional provisions, statutes and a long line of judicial decisions.

The actual regulation of carriers by water in the United States has been relatively limited as compared with that placed upon railroads. Transportation by waterways, inland as well as maritime, is so largely interstate in character that the states have comparatively little jurisdiction outside of ports and terminals. The power of the Federal Government over interstate commerce gives to the national authority the major task both of regulating and of aiding carriers by water. Shipping policy is thus mainly, though by no means entirely, national and, while that policy has already had a long evolution, it is still in the making and doubtless will long continue to be subject to change.

Every maritime country decides upon a shipping policy with reference to the furtherance of national aims, the promotion of foreign commerce, and the development of domestic industry and trade. Naval considerations also have weight with countries whose standing among the nations of the world depends upon strength at sea. Thus it is that government aid and regulation of shipping, i. e., shipping policy, has its political as well as commercial aspects. It is determined by international as well as domestic aims and needs.

In previous chapters, the navigation laws of the United States,

and the administrative regulation of shipping by the Federal Government have been discussed. The aid and regulation of shipping by the states and municipalities has been considered, as has, also, the American ship-building industry and its aid by the government. Having summarized, in the preceding chapter, the mercantile marine policy of the United States, it remains to discuss, with some detail, in this and the succeeding chapter, the Federal regulation of the services and rates of carriers by water in foreign and domestic commerce, and the inland waterways policy of the United States. The concluding chapter will consider the pending problems of legislation and regulation and the outlook for the future.

FEDERAL REGULATION OF THE SERVICES AND CHARGES OF COASTWISE AND OVERSEAS CARRIERS

Ocean carriers under the American flag are regulated in part by general navigation laws applying to many details of shipping and ship operation, and also by a series of regulatory laws that have been enacted during the past half century. The statutes regulating the services and charges of coastwise and overseas carriers include the Interstate Commerce Act of 1887, as amended to date, the Panama Canal Act of 1912, the Shipping Act of 1916, the Bills-of-Lading Act of 1917, the Merchant Marine Act of 1920, and the Intercoastal Shipping Act of 1933. The pertinent features of each act require brief presentation.

The principal Federal statute applicable to the charges and services of carriers by water prior to the passage of the Shipping Act was the Interstate Commerce Act of 1887 as amended to date. This statute is still applicable to the same extent that it was before the enactment of the Shipping Act of 1916, for the latter statute (Section 33) expressly provides that "This Act shall not be construed to affect the power or jurisdiction of the Interstate Commerce Commission, nor to confer upon the shipping board concurrent power or jurisdiction over any matter within the power or jurisdiction of such commission, nor shall this Act be construed to apply to intrastate commerce."

The Interstate Commerce Act does not apply to the port-to-port business of carriers by water, but it does apply to interstate traffic when handled partly by rail and partly by water under

“a common control, management or arrangement for a continuous carriage or shipment” As amended by Section 11 of the Panama Canal Act of 1912, moreover, the scope of the Interstate Commerce Act and the jurisdiction of the Interstate Commerce Commission are with respect to certain matters extended so as to include any interstate traffic that is handled partly by rail and partly by water In the foreign trade, the Interstate Commerce Commission has no jurisdiction either over the port-to-port business of ocean carriers or over such business as they conduct in connection with American railroads

The limited jurisdiction of the Interstate Commerce Commission over carriers by water is of importance, because much interstate traffic is handled over rail-and-water routes The principal powers of the Commission in this regard may be summarized as follows The Commission has authority to establish through routes and joint rates even though certain through rail-water routes have already been established voluntarily, it may establish maximum joint rates and determine “all the terms and conditions under which such lines shall be operated in the handling of the traffic embraced”, it may establish proportional rail rates, actual, or maximum, or minimum, or maximum and minimum, to and from ports to which such traffic is brought or from which it is taken by the coastwise water carriers, it may order the establishment of physical connections between railroads and carriers by water, it may determine the rate division between rail and water carriers that operate over a through rail-water route, it may order the issuance of through bills of lading in domestic interstate rail water traffic The Commission, moreover, has the power to regulate water terminal facilities operated in connection with interstate shipments made partly by rail and partly by water, and all ferries operated in connection with interstate rail-water traffic

In the foreign trade, the Commission has regulated ocean carriers only indirectly by regulating the railroads that make connections with the ocean carriers, the ocean terminal facilities that are used by the railroads, and their terminal charges, rules, and practices Certain specific provisions particularly intended to influence ocean shipping, through the medium of the railroads, are those contained in the Panama Canal amendment of 1912 and

the Transportation Act of 1920 The former has a clause providing that when a railroad subject to the Interstate Commerce Act enters into arrangements with an ocean carrier operating from a port in the United States to a foreign port for the handling of through business originating at interior points, the Commission "may require such railway to enter into similar arrangements with any or all other lines of steamships operating from said port to the same foreign country " The amendment added by the Transportation Act of 1920 is applicable only to shipments made in connection with vessels registered under the flag of the United States It requires railroad agents, upon requests of shippers, to obtain rate quotations from such ocean carriers, and also to separate the cargo port charges, and, when such ocean-rate quotations are accepted, to make firm space reservations in such vessels for the shipper When the shipper delivers a shipment at any point designated by the commission for shipment in a vessel in which space has in this way been reserved, the railroad is required to issue a through bill of lading to the point of destination

The form and contract provisions of the uniform through export bills of lading issued by American railroads were prescribed by the commission in 1921, the uniform bill becoming effective in July 1922 In prescribing this railroad export bill of lading, the Commission was governed by the provisions of the Interstate Commerce Act and the Bills-of-Lading Act The latter Act which became effective January 1, 1917, also applies (with the exception of certain sections of the Act) to bills of lading issued by ocean carriers in both the coastwise and export trades of the United States

PROVISIONS OF THE ACTS OF 1916 AND 1920

Direct regulation of the port-to-port services, practices, and charges of ocean carriers is provided for in the Shipping Act of 1916 and the Merchant Marine Act of 1920 These acts also distinguish between vessels operating in coastwise and Great Lakes commerce and those operating in foreign trade Certain of their provisions apply to both, while others are made more stringent and comprehensive for coastwise than for overseas traffic

Common carriers by water operating either in foreign com-

merce or in interstate commerce on the high seas or the Great Lakes "on regular routes from port to port" are not permitted to make any unfair or unjustly discriminatory contract with any shipper based on the volume of freight offered, or to treat unfairly, or to discriminate unjustly against, any shipper in the matter of (a) cargo space accommodations or other facilities, due regard being had for the proper loading of the vessel and the available tonnage, (b) the loading and landing of freight in proper condition, (c) the adjustment and settlement of claims, nor may the carriers pay deferred rebates to a shipper as a consideration for the giving of all or a portion of his shipment to particular lines or for other purposes, use fighting ships either separately or in conjunction with other carriers, or retaliate against a shipper by refusing or threatening to refuse available space accommodations or by resorting to other discriminating or unfair methods, because he has patronized other lines, or has filed complaint charging unfair treatment, or for any other reason

It is unlawful, both in the foreign and the coastwise or Great Lakes trades, for any common carrier by water to give in any way an undue or unreasonable preference or charge to particular persons, localities, or kinds of traffic, to pay rebates to any person either directly or by means of false billing, classification, weighing, or by any other unjust devices, or in any way to influence marine insurance companies or underwriters to discriminate between competing vessels or cargoes in the rate of insurance charged. It is unlawful both in the foreign trade and in interstate commerce for any carrier or persons subject to the Shipping Act to disclose any information detrimental to any shipper or consignee, unless consent has been obtained, or unless in response to a legal process issued under proper authority.

All such common carriers by water may, moreover, be obliged to file with the United States Shipping Board (since August 1933 with the Shipping Board Bureau of the Department of Commerce) periodical or special reports, accounts, records, rates, charges, or memoranda of any facts and transactions. All are obliged to establish and observe "just and reasonable regulations and practices relating to or connected with the receiving, handling, storing, or delivering of property," and when the

Bureau finds that any such regulation or practice is unjust or unreasonable, it may substitute for it such regulation or practice as it regards just and reasonable. Acting under authority of Congress, the president, in 1933, discontinued the Shipping Board and transferred to the Secretary of Commerce the duty of regulating shipping under the Acts of 1916 and 1920. A Shipping Board Bureau was organized in the Department of Commerce. The Bureau reports to the Secretary of Commerce in whom final authority is vested. The provisions of the regulatory laws were not altered, only the administrative agency was changed. The Secretary of Commerce and the Shipping Board Bureau of the Department of Commerce take the place of the former independent board.

Certain provisions of the Shipping Act of 1916 as amended in the Merchant Marine Act of 1920 apply only to common carriers by water in interstate commerce. Such are the provisions that require domestic carriers by water to file with the Shipping Board and keep open to public inspection all their maximum fares, rates and charges, local as well as those established jointly with other carriers by water. Such also is the provision which prohibits an increase in the maximum charges of domestic carriers by water except with the approval of the Bureau and after 10 days' public notice, and the provision that prohibits the increase of competitive charges that had been reduced below a fair remunerative basis with the intent of driving out or injuring a competitive carrier by water, unless the Shipping Board Bureau finds that the proposed increase is justified by change in conditions other than the elimination of competition.

The Shipping Board Bureau, moreover, has power to prescribe the form of tariffs and the time within which they shall be filed, it may, for good cause, waive the 10 days' notice mentioned above, and whenever it "finds that any rate, fare, charge, classification, tariff, regulation, or practice demanded, charged, collected or observed by such carrier is unjust or unreasonable, it may determine, prescribe, and order enforced a just and reasonable maximum rate, fare, or charge, or a just and reasonable classification, tariff, regulation, or practice."

The government does not fix the rates charged by coastwise carriers on the seaboard or Great Lakes. It has provided by

statute for the publicity of rates and the correction of unreasonably high maximum rates or those that are unjustly discriminatory. In the case of common and contract carriers engaged in the *intercoastal commerce* of the United States, however, Congress has taken a step that may later lead to real regulation of rates. By the Intercoastal Shipping Act, approved March 3, 1933, the intercoastal carriers, both common and contract, must publish and file with the Shipping Board (now the Bureau) their actual rates. Unless a shorter period is allowed by the Shipping Board Bureau, the rates must be filed 30 days before becoming effective and 30 days' notice must be given of changes in the rates. While this law does not provide for the fixing of the intercoastal rates by the government, it stabilizes the rates, limits the excessive competition of the steamship lines with others, and may enable the transcontinental railroads to compete with the intercoastal lines under somewhat more favorable conditions. The Act of 1933—the Copeland Act—however, only partially meets the situation. The rates of carriers by water and by railroad should be regulated in like degree and manner.

Carriers by water in the foreign trade are not required to publish tariffs, nor are they obliged to obtain the approval of the Bureau before increasing their charges, and increases in rates are not contingent upon a 10 days' public notice. They are, however, prohibited from unjustly discriminating between shippers or ports, and from collecting any charges that are "unjustly prejudicial to exporters of the United States as compared with their foreign competitors." When any such unjust charge is demanded or collected, the Shipping Board Bureau may "alter the same to the extent necessary to correct such unjust discrimination or prejudice and make an order that the carrier shall discontinue demanding, charging, or collecting any such unjustly discriminatory or prejudicial rate, fare, or charge." The Bureau may not, however, reduce a rate in the foreign trade unless it involves unjust discrimination or is prejudicial to American exporters as compared with those of foreign countries. None of the provisions affecting the foreign trade is applicable to tramp vessels, for Section 1 of the Act expressly excludes such vessels from the term "common carrier by water in foreign commerce."

Most of the regulatory provisions relative to ocean services, practices and charges of the Merchant Marine Act of 1920 constitute amendments to the Shipping Act of 1916, but the Act of 1920 also contains several additional regulatory provisions. Section 19 authorized the Shipping Board to make all necessary rules and regulations to carry out the provisions of the Merchant Marine Act, to "make rules and regulations affecting shipping in the foreign trade not in conflict with law in order to adjust or meet general or special conditions unfavorable to shipping in the foreign trade," and to request any government agency, other than the Public Health Service, the Consular Service and the Steamboat Inspection Service, subject to review by the President, to suspend, modify, or annul any of its regulations affecting shipping in foreign trade or to make new rules.

Section 30, which may be cited as the Ship Mortgage Act of 1920¹ contains regulations requiring and governing the recording of sales, conveyances, and mortgages of American vessels, it defines the conditions applicable to preferred mortgages, it imposes penalties, defines preferred liens and extends to preferred mortgages a "priority over all claims against the vessel, except (1) preferred maritime liens, and (2) expenses and fees allowed and costs taxed, by the court" in which proceedings for the enforcement of a preferred mortgage lien are instituted.

ADMINISTRATION OF SHIPPING AND MERCHANT MARINE ACTS

The Shipping Board Bureau, has, since January 10, 1934, been in charge of a director who reports directly to the Secretary of Commerce. The Bureau, as reorganized April 14, 1934, carries on its activities through a division of loans and sales, a division of regulation, a division of shipping research, a division of traffic, and a section of public information. The Merchant Fleet Corporation, which is a part of the Shipping Board Bureau organization, has a division of operations, a division of insurance, and a legal division, and has the offices of secretary, general comptroller, and treasurer. In this discussion, we are particularly concerned with the Bureau's regulation of the services and rates of carriers by water in so far as that has been authorized by the Shipping Act of 1916 and subsequent legislation.

¹ Ship Mortgage Act is supervised by the Secretary of Commerce.

Complaints may be filed with the Shipping Board Bureau by any person, and, as in case of the Interstate Commerce Commission, the Bureau may also institute investigations upon its own motion, it may, by subpoena, compel the attendance of witnesses and the production of books, papers, documents, and other evidence from any place in the United States, and it may, after due hearings, issue orders which, with the exception of orders involving the payment of money, may be enforced by obtaining a writ of injunction or other proper process, mandatory or otherwise, from a federal district court. Reparation awards and orders for the payment of money may be enforced by filing petitions or suits in a federal district court, or in any court of general jurisdiction of a state, territory, district, or possession of the United States having jurisdiction of the parties concerned. Judgment may be entered in favor of any plaintiff against a defendant who refuses to pay money awarded by the Bureau.

Numerous penalties against violation of the provisions of the act are provided in connection with specific sections, and a general penalty not exceeding \$5,000 is provided in case of violations applicable to all provisions in connection with which a different penalty is not provided. The last section of the Shipping Act, moreover, authorizes the Secretary of the Treasury to refuse clearance to any vessel engaged either in the foreign or coastwise trade whenever he has satisfactory reason to believe that the owner or master of the vessel—although space accommodations are available, and although the cargo is offered in good condition and the proper freight transportation charges are tendered—refuses or declines to accept cargoes destined to ports that are regularly served by the vessel.

The orders of the Shipping Board Bureau are subject to review by the federal courts in the same manner that orders of the Interstate Commerce Commission may be reviewed.

Since the Interstate Commerce Act under certain conditions applies to water transportation, as it did before the passage of the Shipping and Merchant Marine Acts, it follows that many carriers by water are now subject to control by two distinct administrative bodies. Although the Interstate Commerce Commission may not regulate the port-to-port charges of coastwise or ocean carriers, it is obvious that port-to-port charges and the

charges via rail-water routes are interrelated. It is also well established that the port-to-port rates of carriers by water, and the all-rail rates of railroad companies are, in many instances, closely interdependent. The former, however, are subject to control by the Shipping Board Bureau, while the latter are exclusively regulated as to interstate commerce by the Interstate Commerce Commission. Nor is it at all times clear whether a particular shipment constitutes purely port-to-port traffic or traffic that is handled partly by rail and partly by water. Concerns that conduct a business of forwarding, or furnishing wharfage, dock, warehouse, or other terminal facilities in connection with a common carrier by water are subject to the provisions of the Shipping Act, yet concerns of this kind when handling interstate traffic moving partly by rail and partly by water may also be subject to the provisions of the Interstate Commerce Act. A conflict of jurisdiction as between the Shipping Board Bureau and the Interstate Commerce Commission may arise unless the two administrative bodies accomplish the difficult task of working in close and friendly cooperation.

The extent to which the Shipping Board Bureau is authorized to regulate privately operated carriers by water in foreign and interstate commerce is to be distinguished from the powers it possesses with respect to the charges and services of government-owned merchant vessels. The government has not yet disposed of all the vessels it owned after the World War. Some of these are in service, and the profit sharing agreement, under which some government-owned merchant vessels are operated, specifies that "the agent shall be subject to the orders of the owner and its authorized representatives as to voyage, charters, rates of freight and other charges and as to all other matters connected with the agency." When this amended agreement was adopted in 1930, a second so called lump sum agreement was also adopted. Under the terms of the latter the direct control of the Shipping Board was reduced to a minimum. This lump sum agreement does not contain the clause quoted above, the managers being largely free to adjust rates and service practices, except in so far as they are subject to specific clauses in the agreement with reference to conference agreements, bills of lading, etc., and, except in so far as the general regulatory powers of the

Shipping Board apply to them as well as to private steamship lines

FEDERAL REGULATION OF RELATIONS OF CARRIERS

In addition to the navigation laws of the United States, and the various statutory provisions regulating the services and charges of carriers by water, there are a number of important statutes that regulate the relations between ocean carriers and between ocean-and-rail carriers. The Shipping and Merchant Marine Acts just referred to in connection with the regulation of services and charges are also of principal importance in connection with conferences, agreements, pools, and other arrangements between ocean carriers. Having discovered that such relations between ocean carriers are general throughout the greater part of the maritime world, Congress wisely decided that the Sherman Antitrust Law should not apply in the future.

Section 15 of the Shipping Act of 1916 expressly provided that all agreements, modifications, or cancellations approved or ordered by the United States Shipping Board shall be exempted from the provisions of the Sherman Antitrust Act and the antitrust provisions contained in the tariff law of 1894. The section provided that all copies of agreements, pools, understandings, or other conference arrangements of ocean carriers subject to the Act, shall be filed with the Shipping Board, and it empowered the Board to disapprove, cancel, or modify any such agreements or arrangements. It stipulated that "agreements existing at the time of the organization of the Board shall be lawful until disapproved by the Board," and "that it shall be unlawful to carry out any agreement or any portion thereof disapproved by the board."

Section 14 of the Act, however, explicitly prohibited certain objectionable features of ocean conference arrangements. It prohibited the payment of deferred rebates, the use of fighting ships, and retaliation by reducing or threatening to reduce, space accommodations, or by resorting to other discriminating or unfair methods against shippers who patronize other carriers or who file complaints with the Shipping Board. This section also declared unlawful any unfair or unjustly discriminatory contracts with shippers based upon the volume of freight offered,

and any unfair treatment or discrimination against shippers in the matter of cargo space, loading and discharging of freight in proper condition, or in the matter of adjusting and settling claims. Any violations of Section 14, which prohibits the objectionable practices referred to, are punishable by a fine not exceeding \$25,000 for each offense.

The Merchant Marine Act of 1920, moreover, added a section (14a) which specifically authorized the Shipping Board to determine whether "any person, not a citizen of the United States and engaged in transportation by water of passengers or property, has violated any provision of Section 14, or is party to any combination, agreement, or understanding, express or implied, that involves in respect to transportation of passengers or property between foreign ports, deferred rebates or any unfair practice designated in Section 14, and that excludes from admission upon equal terms with all other parties thereto, a common carrier by water which is a citizen of the United States and which has applied for such admission." In case the Board determined that a foreign ocean carrier had violated the provisions of Section 14 or was party to such an agreement or understanding, the Secretary of Commerce was directed to refuse it the right of entry for any vessel owned, operated, or directly or indirectly controlled by it, into any port of the United States, until the violation had ceased or the agreement or understanding had been terminated.

PROHIBITIONS OF THE PANAMA CANAL ACT OF 1912

Consolidations of ocean carriers by stock ownership, merger, outright purchase, or otherwise than by means of agreements, pools, understandings, and other conference arrangements, are not specifically included within the Shipping Act. It is therefore probable that the federal antitrust laws are applicable to any such consolidations as result in unreasonable restraint of trade. Section 11 of the Panama Canal Act of 1912, moreover, contains a special provision which prohibits any vessel that is owned, chartered, operated, or controlled by any concern that is doing business in violation of the federal antitrust laws from navigating the Panama Canal.

The conditions under which the antitrust laws are applicable to ocean steamship consolidations have not thus far been defined.

by the United States Supreme Court There is reason to believe, however, that the application of these statutes is not dependent upon the place of incorporation of the consolidated companies nor upon the foreign or interstate character of the traffic in which they are engaged The United States Supreme Court² ruled that "while the United States may not control foreign citizens operating in foreign territory, it may control them when operating in the United States in the same manner as it may control citizens of this country"³

The relations between ocean carriers and the railroads are governed principally by the provisions of the Panama Canal Act of 1912 Section 11 of that statute, the one that amends the Interstate Commerce Law, affects the relations between carriers by water and rail in two principal respects, in addition to the requirements relative to through bills of lading, terminal connections and other traffic and operating arrangements previously referred to (1) it prohibits any railroad-owned or controlled carrier by water that is or may be competitive with its owner from passing through the Panama Canal, (2) it prohibits the railroad ownership or control, anywhere in the coastwise, Great Lakes, or other interstate commerce of the United States, of a carrier by water that competes or may compete for traffic against its railroad owner unless it may be shown that such railroad owned carrier by water is "operated in the interest of the public and is of advantage to the convenience and commerce of the people," and also that the future railroad ownership or control will "neither exclude, prevent, nor reduce competition on the route by water under consideration." The Interstate Commerce Commission is authorized to determine questions of fact as to the actual existence or possibility of competition The commission is also authorized to determine whether in its opinion the railroad owned or controlled carriers by water are operated in the interest of the public, whether they are of advantage to the convenience and commerce of the people, and whether or not the fact of railroad ownership or control excludes, prevents or reduces competition

² U S v Pacific and Arctic Ry and Nav Co, *et al*, 228 U S 87, April 7, 1913

³ See also U S v Great Lakes Towing Co, *et al*, 208 Fed Rept 733, Feb 11, 1913

FEDERAL REGULATION OF CARRIERS ON RIVERS AND CANALS

In the discussion of the relations of railroads with inland waterways in Chapter XXIII the facts were presented as to federal regulation of the services and rates of carriers upon rivers and canals, in so far as such regulation is exercised. The provisions of the Interstate Commerce Act referred to in the foregoing account of the federal regulations of the services and charges of coastwise and overseas carrier do not give the Interstate Commerce Commission power to fix the rates on the port-to-port traffic upon inland waterways, but the Commission can and does establish through routes by rail-and-water or rail, water and rail. The commission fixes the joint rates by such through routes at a differential under what the rates all-rail would be and decides what portion of the through rate each of the carriers concerned shall receive.

The purpose of these provisions of the Panama Canal Act of August 24, 1912, of the Interstate Commerce Act as amended, and also of the Inland Waterways Corporation Act of June 7, 1924, as amended and strengthened by the Denison Act of May 29, 1928, was to promote rather than to regulate transportation upon inland waterways. The object of Congress was to require the railroads to share traffic with the waterways by substituting, when practicable, joint rail and-water routes and services for all-rail transportation. The Federal Government had spent and was spending large sums upon the improvement, extension, and connection of inland waterways, and it was believed that their larger use would not only reduce the transportation charges paid by many shippers but would further a balanced economic development of the country. It was also thought that the relatively small use of inland waterways, except the Great Lakes, for other than local traffic was due to the policy that the railroads followed of holding all possible traffic to the rails. Hence the railroads were required to share a part of their long-haul traffic with the carriers upon the inland waterways and to accept, instead of an all-rail rate, their proportion of a reduced joint rate. This and other phases of the inland waterways policy of the United States will be considered in the following chapter.

THE LIMITED SCOPE OF FEDERAL REGULATION OF CARRIERS BY WATER

The regulation by the United States of carriers engaged in foreign commerce, as provided in the navigation laws and in the successively enacted regulatory statutes referred to in the foregoing discussion, is probably as comprehensive as is desirable or practicable. It is impracticable for the government to fix the rates of overseas carriers, but existing statutes contain ample provisions against unreasonable discriminations as among shippers or ports and against unfair practices of carriers both as regards the services they render and as concerns their relations with each other. Government regulation can hardly prevent ocean carriers in the foreign trade from engaging in competition that is destructive of profits, but in preventing the use of "fighting" ships to eliminate a competing line, and in legalizing the cooperation of steamship companies to stabilize competition by conference agreements, the government has gone as far as it need go. Ocean conferences, except in periods of severe business depression, have proven effective means of bringing about cooperation among ocean carriers.

The government regulation of carriers by water engaged in the domestic commerce of the United States, as has been pointed out, is limited in scope. A beginning has been made in the regulation of the rates and services of regular lines operating on seaboard routes and on the Great Lakes. The Panama Canal Act of 1912 (whether wisely or not is at least debatable) took the railroads, with a few important exceptions, out of transportation by water, and the Shipping Act of 1916 required the regular lines coastwise and on the Great Lakes to publish their maximum rates and file them with the Shipping Board. As might have been expected, the requirement of publishing and filing schedules of maximum rates accomplished but little. The rates filed were not the actual rates charged by carriers who were competing actively or aggressively with each other and were eagerly soliciting traffic of shippers. The Shipping Board was not able, nor will the Department of Commerce be able, to regulate the rates of the coastwise and Great Lakes carriers until the law requires the carriers to charge only such rates as have been published and filed, and until the responsible government authority has the

power to decide whether the rates filed are reasonable, and to determine what rates the carriers involved may be allowed to charge in the future

The Intercoastal Shipping Act of March 3, 1933 (The Cope-land Act) is good as far as it goes. It would be well if coastwise carriers, other than those in the intercoastal trades and those on the Great Lakes, were required to file their actual rates, to charge only the rates so filed, and to give 30 days' notice of proposed changes in rates. This, however, would not be the regulation of rates but their greater stabilization. Competition would be somewhat restrained and, if the law is effectively enforced by adequate administrative machinery, discriminations in rates will be greatly lessened. The question that would still remain unanswered would be, should the principles of regulation applied to the coastwise and Great Lakes carriers be the same as or different from those adhered to in regulating their competitors, the carriers by rail? The American people have not yet answered this question, but it seems probable that they must soon reach a decision.

As has been said, there is no real federal regulation of carriers upon the inland waterways, other than the Great Lakes. The government is concerned with the improvement and extension of inland waterways, and with the promotion of their use. Waterways like highways are made available for use and are maintained by the public. The common, contract and private carrier may, if he will, use the public waterway. Railroad companies may not navigate the inland waterways. Others may do so, and without government regulation of services and rates. Is this a wise policy?

REFERENCES

Those making further study of the Federal regulation of the services and rates of carriers by water will wish to consult the statutes referred to in this chapter, especially

The Interstate Commerce Act as amended to date
The Panama Canal Act of August 24, 1912
The Bills-of-Lading Act of August 29, 1916
The Shipping Act of September 7, 1916
The Merchant Marine Act of June 5, 1920

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The Inland Waterways Corporation Act of June 7, 1924, as
amended by the Act of May 29, 1928

The Intercoastal Shipping Act of March 3, 1933

The Annual Reports of the United States Shipping Board for 1933 and previous years, and the Annual Report of the Secretary of Commerce for 1934 contain the history of administrative regulation of carriers by water by the Shipping Board and its successor the Shipping Board Bureau of the Department of Commerce

There is a brief discussion of the regulation of shipping in Calvin, H C and Stuart, E G, *The Merchant Shipping Industry* (1925), Chaps xxii and xxiii

CHAPTER XXXIII

INLAND WATERWAYS POLICY OF THE UNITED STATES

INLAND waterways are of three kinds, lakes, rivers, and canals. The United States and Canada have in the five Great Lakes an unrivaled inland waterway. Likewise both countries have navigable rivers of the first rank, including for Canada the unmatched St. Lawrence, and for the United States the Hudson, the Ohio-Mississippi and their tributaries, and the Columbia, not to mention the many other navigable streams in each country. For the improvement of the navigation of these natural waterways, and to connect them with each other or the ocean, where practicable, canals on a large scale have been constructed by Canada, the United States, New York State, Illinois and some other states.

In Chapters V and VI, the transportation facilities of and on the Great Lakes and the rivers and canals of the United States were described, and in Chapter IX, the services and agencies of transportation on these different kinds of waterways were considered. Chapter XV contains an account of the operating organization of vessel lines on the ocean and on inland waterways and Chapter XVII explains the shipping documents used by ocean carriers. Later chapters have discussed the competitive and other relations of railroad and inland waterway carriers and have explained how carriers upon inland waterways handle the classification of freight, the construction of tariffs and the making of freight rates. The purpose of this chapter is to supplement the previous discussion of inland waterways and their use and services as transportation facilities by considering the past and present policy of the states and, particularly, the United States in the improvement, extension and maintenance of the navigation of those waterways.

EARLY POLICY OF THE STATES AND FEDERAL GOVERNMENT
REGARDING INLAND WATERWAYS

The first railroads were built in the United States about 1830. Starting as small enterprises and with crude facilities in track, rolling stock and power equipment, their early development was relatively slow and it took two decades to bring about the connection of the seaboard with the Great Lakes and Ohio River, and thus with the interior of the country. In the meantime, both the Atlantic Seaboard States and the transmontane states were in urgent need of transportation facilities, and it was natural that the example of England and France should have been followed by the construction of canals by corporations, often with the assistance of the state or Federal Government.

Canal construction began at the close of the War of 1812-15, and those built between 1815 and 1835 were for one or the other of two purposes, to connect the anthracite coal fields with the seaboard cities, or to join those cities with the Great Lakes or the Ohio River. The canals from the anthracite fields to tidewater were those paralleling the Lehigh and Schuylkill Rivers to their mouths and the Delaware River from the mouth of the Lehigh to Bristol, Pennsylvania, the Delaware and Hudson Canal from Honesdale, Pennsylvania, to Rondout on the Hudson River, the Morris and Essex Canal from Easton on the Delaware to Jersey City, the Delaware and Raritan Canal from the Delaware River, at Bordentown, across New Jersey to New Brunswick, on the Raritan River. Baltimore was reached from the coal fields via the canals down the Lehigh, Schuylkill and Delaware Rivers, and the Chesapeake and Delaware Canal connecting the two bays. Baltimore also had a water route from central Pennsylvania via the Susquehanna and Tidewater Canal, which was used more for general merchandise than for coal shipments.

The canals just named were corporate enterprises not largely aided by the states, but those that were built to connect the Atlantic seaboard with the trans-Allegheny region were undertakings too large for unaided corporations to carry out. The State of New York from 1817 to 1825 constructed the Erie Canal and other canals forming a state waterway system connecting the Hudson River with Lakes Erie, Ontario and Champlain and

the lakes in the central parts of the state. The activity of New York State caused Pennsylvania in 1825 to undertake the construction of a rail and canal route from Philadelphia to Pittsburgh and the Ohio River. This route comprised a railroad from Philadelphia to the Susquehanna River, a canal up the Susquehanna and Juniata valleys to Hollidaysburg, a portage railway for the transportation of canal boats over the mountains to Johnstown, and a canal thence to Pittsburgh. This composite route was completed in 1834 and, although it served a useful purpose during the twenty years that intervened before the opening of the through railroad line from Philadelphia to Pittsburgh, it was an expensive and slow route to operate and did not enable Philadelphia to hold its own in competition with New York aided by its Erie Canal connection with the Great Lakes. The physical handicap to be overcome in connecting Baltimore and Chesapeake Bay, by a transportation route, with the Ohio River proved greater than could be overcome. In 1828, the Chesapeake and Ohio Canal Company, aided by the State of Maryland, began the construction of a canal from Georgetown (Washington, D C) up the Potomac, but it was not until 1851 that this canal was opened for navigation from Cumberland, Maryland, to Georgetown. In the same year, the Baltimore and Ohio Railroad Company, with some public aid, completed its line from Baltimore to Wheeling on the Ohio River. It was in that year also that the first continuous through rail service from New York City to Lake Erie was inaugurated.

The foregoing statement will suffice to show how inland waterways were constructed as corporate and government enterprises during the decade preceding the advent of railroads and during the first twenty years of railroad development. An account of river canalization and canal construction by Virginia, Kentucky, Ohio, Michigan and Illinois would take this account of inland waterways policy into greater historical detail than would be appropriate. The history, which is fully presented in Volume IV of the *Tenth Census of the United States*, would show that most of the states engaged more or less extensively in canal building between 1815 and 1850, with results that were usually unfortunate. Lack of experience apparently caused engineers to underestimate expenses in most instances; while the probable traffic

and revenues were frequently overestimated. Many canals were located where, as subsequent events proved, a railroad would have provided a better service at less capital cost, and, what was worst of all, the majority of the states adopted financial methods which could hardly have led to other than disastrous consequences. This was the juvenile period in the history of American currency and banking. Taken all in all, the experience of the states in carrying out works of "internal improvement" constitutes a regrettable chapter in American financial history.

The states, having failed in the majority of their canal projects either through unwise financing or because the traffic of the waterways was less than had been expected, sold or abandoned numerous routes, and canal building, where possible, was stopped by most states by about 1850. The railroad had shown itself superior to the canal of that day as a transportation facility. Many states substituted railroad building or public aid to railroads in place of canal enterprises, and the railroads built by corporations, aided to a large extent by the states, many of which were assisted by grants of public lands by Congress, supplied the transportation facilities that the states had been endeavoring to provide by river canalization and canal construction. Between 1850 and the end of the century, the original canals became more and more antiquated and unable to meet the needs of commerce or to compete with the railroads. Since 1900, however, there has been a revival of interest in inland waterway development. As will be explained presently, New York and Illinois and in a lesser way some other states have emphasized canal enlargement and the Federal Government has carried on river canalization on a relatively large scale.

The relation of the Federal Government to the improvement and extension of waterways constitutes an interesting chapter in American economic history. The influence of Albert Gallatin during Jefferson's administration, and of Henry Clay and other leaders of the Whig party in John Quincy Adams's administration would have caused the United States to engage in waterway development as well as turnpike construction, had not "internal improvements" by the Federal Government been opposed by the Democratic Party which was in control of the national government most of the time from 1830 to 1861, and which was forced,

in defense of state rights upon which the perpetuity of the institution of slavery depended, to oppose the adoption and execution of a national program of highway and inland waterway development. Some aid was given by the United States Government for the improvement of rivers and the construction of canals before the Civil War, but the activity of Congress in the development of inland waterway navigation was not important until about 1870, from which time dates the regular enactment of a river and harbor act, usually each biennium, making appropriations for harbors as well as for inland waterways.

Congress decides what waterway improvements or extensions shall be made and what appropriations shall be granted therefor after surveys have been made by the Corps of Engineers of the United States Army, and after the surveys and reports thereon have been reviewed by the Board of Engineers for Rivers and Harbors. The works authorized are executed by the Engineer Corps. The methods followed by Congress in the improvement of waterways have been greatly improved. Prior to 1890, Congress authorized specific improvements to be made—its action being inevitably influenced by pressure of local interests—and partial appropriations were made, year by year by a "dribble" system, to carry on the work authorized. Beginning with 1890, however, Congress adopted the policy of placing the larger works, such as the improvement of the Mississippi and Ohio Rivers and of the larger harbors, upon a "continuing contract" basis, power being given the secretary of war to make contracts for the execution of the authorized projects and thus to obligate the government to make such subsequent appropriations as were required to fulfil the executed contracts. The subsequent appropriations were included in the sundry civil act.

In 1921, Congress passed the "Budget and Accounting Act." This provides for a budget to be submitted by the President with recommendations for expenditures. The present procedure regarding river and harbor improvements is that Congress, acting upon a bill originating in the Rivers and Harbors Committee of the House of Representatives, legislates authorizing projects. The appropriations for carrying on or starting improvements are included in bills originating with the House Committee on Appropriations and the funds thus provided are in a lump sum,

the distribution of which among the many authorized works is vested in the Board of Engineers for Rivers and Harbors and the Chief of Engineers

Congress did something for the development of a coordinated scheme of developing inland waterways when, by the Rivers and Harbors Act of March 3, 1925, it directed the Secretary of War to prepare and submit to Congress an estimate of the cost of surveying the "navigable streams of the United States with the view to the formulation of general plans for the most effective improvement of such streams for the purposes of navigation and the prosecution of such improvement" Such a report was made in April of 1926, listing 200 streams and estimating the cost of surveys at \$7,822,400 By the Rivers and Harbors Act of January 21, 1927, Congress directed the surveys to be made This action was the result of a prolonged and organized effort on the part of those interested in the development of inland waterways

During the decade and a half following the return of prosperity after the business depression of 1893-1898, there seemed to be a need for more transportation facilities than the railroads were providing The highways were yet to be improved and to be largely used by trucks, and the rivers and canals were of little service The development of inland waterways had been neglected and the equipment employed upon such of them as were used was not able to hold traffic against the railroads There was a widespread belief that, as the economic and industrial growth of the country proceeded, there would be inadequate transportation facilities Naturally, the subsequent phenomenal technical development of the railroad locomotive, and the automobile engine—the greater economy of railroad transportation and the sudden growth of highway traffic—could not have been foreseen Although traffic upon the inland waterways, other than the Great Lakes which are in a class by themselves, was not large and was declining, it was believed that this was due to the neglect to improve them and that by putting the waterways in condition to meet the requirements of shippers they would be largely used

The motives back of the organized campaign to bring about the adoption by Congress of a comprehensive program of inland waterway improvements were mixed, being partly those of shippers and industries and communities that would directly benefit

from the expenditure of public funds upon waterways, and partly those of persons who patriotically and disinterestedly believed that the inland waterways should be improved and, so far as practicable, be linked up with each other, because they could and would further the economic and industrial development of the country and promote the general welfare. This mixture of motives is unfortunately not exceptional, as the good in the promotion of public enterprises is not infrequently obliged to associate with what is mainly selfish.

The progressive development of a more comprehensive inland waterways policy during the past twenty-five years is to be attributed partly to the National Rivers and Harbors Congress, a country-wide organization whose annual meetings in Washington are attended by delegates from many influential national and local organizations, but probably actual congressional and state action has been more largely influenced by such more local organizations as the Atlantic Deeper Waterways Association, the Ohio River Valley Improvement Association, the Lakes-to-the-Gulf Deep Waterways Association, the Upper Mississippi River Improvement Association, the Missouri River Improvement Association, the Western Waterways Association, the Columbia River Association, the Lake Carriers Association and the Great Lakes-Tidewater Association. Some of the organizations, in this incomplete list, having accomplished their main purpose, are not now active, while others are carrying on their work with unabated vigor.

The movement for the improvement of inland waterways was given impetus by President Theodore Roosevelt who, in March, 1907, appointed an Inland Waterways Commission "to prepare and report a comprehensive plan for the improvement and control of the river systems of the United States." Under the able and disinterested leadership of Theodore E. Burton, who had for many years been chairman of the Rivers and Harbors Committee of the House of Representatives, this commission prepared a preliminary report in 1908. In May of that year, the President had at the White House a notable three days' conference of the governors of the states, representatives of national organizations, and experts of recognized standing for the purpose of considering the general question of the conservation of natural resources,

including water resources and those of forests, minerals and lands. This conference was followed by the President's appointment of a National Conservation Commission that made a report in 1909.

It was probably the activity of the President that caused Congress to provide in the Rivers and Harbors Act of March 3, 1909, for the United States National Waterways Commission composed of members from the House of Representatives and the Senate. Naturally Theodore E. Burton was the chairman. This Commission made a preliminary report in 1910 and a final report in March, 1912. These two reports and the accompanying documents are valuable sources of information. They had much influence upon legislation. One recommendation contained in the preliminary report of 1910 was that, if a railroad reduces rates temporarily and locally to secure traffic from a competing water line or to force the water line out of business, the railroad should not be allowed subsequently to raise such rates unless the Interstate Commerce Commission shall find "such proposed increase rests upon changed conditions other than the elimination or decrease of water competition." This proposal was embodied in the Transportation Act of June 18, 1910, and is now Paragraph 2 of Section 4 of the Interstate Commerce Act as amended. Finding that this provision was "not sufficient for the preservation and growth of water transportation," the National Waterways Commission in its final report in 1912 recommended that the Interstate Commerce Commission "be given power to compel physical connection between railways and waterways wherever practicable and necessary for the formation of through routes" and also "have power to compel railways to charge less than the local rates to all lake, river, and seaports on through traffic to be exchanged with boat lines engaged in domestic trade." These recommendations were embodied in Section 11 of the Panama Canal Act of August 24, 1912, the Interstate Commerce Commission being given the additional power "to establish through routes and maximum joint rates between and over such rail and water lines," as have been physically connected. By the Hepburn Act of 1906, the commission had been given authority to establish through routes by rail and water lines in interstate commerce, to fix the maximum through rates, and to determine the propor-

tion thereof to be retained by the participating carriers. This authority was strengthened by the Panama Canal Act, and later by the Transportation Act of 1920, and by the Act of May 29, 1928.

The final report (1912) of the National Waterways Commission contained a wise recommendation that was not adopted by Congress and that has not yet been enacted into law. The Waterways Commission, in recommending legislation to preserve water transportation and to prevent unfair competition between rail and water carriers, stated that such legislation "should not be of a character to discourage legitimate investments in the business of water transportation, even by railway companies. If the activities of boat lines are properly regulated in the interest of the public, the question of ownership or control will become of minor importance." Accordingly it was recommended "that every water carrier engaged in interstate commerce which is owned or controlled by a railroad, or in which a railroad is in any way interested, and also every independent water carrier, which operates over a specified route with regular schedules, be placed under the control of the Interstate Commerce Commission and be made subject to the same rules and regulations now imposed upon railway corporations in so far as they are applicable." This unadopted recommendation has since the beginning of 1934 been the subject of discussion and debate. It is to be hoped that the affirmative side will win and secure legislative action.

IMPORTANT RIVER AND CANAL IMPROVEMENTS SINCE 1900

The movement for the improvement and extension of inland waterways has been gaining headway almost continuously for thirty years. When the movement for the renaissance of inland waterway navigation started, the railroads were regarded as monopolies and it was thought that they might not be able to supply all the transportation needs of the country, especially the need for the cheap movement of bulky freight in large quantities. It was thought that such freight could, where facilities were available, be transported cheaper upon rivers and canals than upon railroads.

New York State led the movement by providing in 1903, by

means of a state bond issue of \$101,000,000, for the enlargement of its canals and waterways having channels and locks twelve feet in depth. The locks were made 328 feet long and 45 feet wide, the bottom width of river sections 200 feet, and of canal sections 75 feet. This permits boats and barges to draw 10 feet of water. The state system included, in addition to the trunk line (Erie) canal from Troy on the Hudson River to the Niagara River and Lake Erie, the Oswego Canal connecting the Trunk Canal with Lake Ontario, the branch canal to Lakes Seneca and Cayuga and the canal from the Hudson River to Lake Champlain. The total length of this system, including the navigation through Lakes Cayuga and Seneca, is 525 miles. Changes in the routes of the Erie Canal and the abandonment of some small canals have reduced the former length 77 miles. The cost of making the improvements that were authorized in 1903, and which were started in 1905, together with amounts subsequently approved for construction of terminals, required three additional bond issues, the total of the four issues being \$154,800,000. The State of New York is now carrying Barge Canal bonds amounting to about \$150,000,000 bearing 4 per cent interest. The annual cost to the state of its canals, including interest, maintenance and operating expenses, is over \$9,000,000. Incidentally it may be stated that the total net expenditures of the State of New York on its canals from 1817 to 1934 have amounted to about \$375,000,000. Prior to 1903, the state had spent \$107,462,149 on canal construction and for interest, maintenance and operation \$114,339,322, a total of \$221,801,471. The receipts from the canals, including the tolls that were charged prior to 1883, had amounted to \$149,643,151, or \$72,158,320 less than the total outlay. The Erie Canal had shown a surplus, the other lesser used canals caused the deficit. Since 1903, the total expenditures for construction, for interest on loans, for maintenance and operation have been over \$300,000,000.¹

The traffic on the New York Canals has been much less than was expected would result from their improvement. The heaviest

¹ These statements as to receipts and expenditures and also the following data as to traffic are taken from *An Economic Survey of Inland Waterway Transportation in the United States*, which contains data prior to 1930. The data for 1930-34 are based on the Annual Reports of the Superintendent of Public Works of New York, Albany, N. Y.

tonnage was during the early 1870's, the prosperous years following the Civil War, when for the three years 1871-73, the average per annum was about 6,500,000 tons. A decade later 1881-83 the annual average was a little over 5,500,000 tons, and although tolls were abolished in September, 1882, the traffic of the canals soon began to decline. The operation of the enlarged canal system was started in 1918, but the subsequent increase in traffic was slow. During the ten years ending in 1929 the total tonnage was 21,865,806, an annual average of 2,186,580 tons. The traffic for 1931 was 3,722,012 tons and for 1932, 3,642,433 tons, for 1933, 4,074,000 tons, and for 1934 it was 4,142,728 tons. This decided and encouraging increase during the last four years has not resulted from a larger tonnage of wheat. The shipment of wheat from Buffalo to New York via the Erie Canal has in the past been the principal item of traffic, but latterly petroleum and its products have held first place and agricultural products second place. The increase in tonnage has not been in agricultural products transported by common carriers, but in petroleum and its products, sugar, iron, and chemicals. Some of these commodities, especially petroleum and its products, have been shipped in large part by industrial concerns that have used their own equipment. This indicates that canals such as the State of New York has provided (as also the canalized Monongahela and Ohio Rivers) may be used increasingly by private carriers in connection with their industrial operations, and that the operations of common carriers serving the general public will become of declining importance.

The foregoing figures as to traffic on the New York Canals include the tonnage moved on the state system as a whole. Most of the traffic has always been and now is on the Erie Division connecting Lake Erie with the Hudson River. In 1934, the total tonnage of 4,142,728 was divided as follows among the several ports of the state system: The Erie Canal Division 3,646,245 tons, the Oswego Division 273,667 tons, the Cayuga-Seneca Canal 16,517 tons, and the Champlain Canal 206,299 tons. The traffic on the Champlain Canal is relatively light and tends to decrease, while the tonnage of the Cayuga-Seneca Canal is so small as to make the continuance of that waterway of questionable value.

The Barge Canal System of New York has proven to be an expensive burden to the state. One reason is that it is over-equipped. In a report submitted to Governor Smith by the State Superintendent of Public Works in February, 1926, it was stated, among other things, that there were 66 terminals in connection with the system at 53 of which there were warehouses, and that during the two previous years no freight was handled at 49 of the terminals and that only five of the 53 warehouses were used for canal freight. The two grain elevators built by the state had not been a financial success. A year later the superintendent recommended that the state sell the 15 terminals that were located on sites not on the canals and thus reduce somewhat the canal's overhead and carrying charges.

Most of the tonnage on the New York Canals is interstate traffic. This is especially true of the Erie and Oswego Canals. In the Rivers and Harbors Act approved July 3, 1930, Congress authorized and empowered the Secretary of War "to accept from the State of New York the State-owned canals, known as the Erie and Oswego Canals, and to operate and maintain them at their present depth. Provided that such transfer shall be made without cost to the United States." The State of New York has not yet acted upon this offer of the United States.

Meanwhile, the movement for the creation of a 27-foot waterway in and along the St. Lawrence River has so far progressed that Canada and the United States negotiated a treaty for the execution of the work by the two countries. The treaty was acted on by the United States Senate at the close of 1934 and failed to secure the two-thirds majority necessary for approval. Presumably a revised draft of a treaty will be presented to the Senate at a later date. If the navigation of the St. Lawrence should ultimately be improved, as seems probable, the traffic of the New York Canals could hardly fail to be thereby reduced. At least a part of the grain and other traffic that is transferred from lake vessels to canal barges at Buffalo under present conditions, would be carried on to Montreal via the enlarged St. Lawrence waterway.

Summarily stated, the Erie and other New York State Canals are compelled to compete for traffic with rail carriers of increasing efficiency and with rapidly expanding truck transportation—

the total facilities for shipment by railroads, highways and waterways providing a surplus of transportation. This situation promises to be further complicated by the improvement of the St. Lawrence waterway, and the consequent diversion thereto of a part of the tonnage that would otherwise move through the State of New York.

The great natural system of inland waterways in the United States (other than on the Great Lakes) is that provided by the Ohio, Mississippi and Missouri Rivers and their navigable tributaries. Before the eastern trunk line railroads reached the middle west, and while timber was being rafted down stream from the forests in the upper portions of the river basins, these rivers were largely used to transport agricultural, industrial and forest products. From 1870 on, the railroad net spread rapidly and provided a country-wide system of transportation with which the rivers found increasing difficulty in competing. By the end of the century river traffic had become relatively unimportant and it continued to decline on most streams for some time thereafter.

The present active interest in the improvement and larger use of inland waterways had its origin, as has been explained, during the first decade of this century when industry was expanding rapidly and when practically the only means of transportation was by rail. It then seemed to the public not only that the railroads had a monopoly of transportation but that there was need of more facilities than the railroads could or would provide. Naturally, the great technical development that the railroads were to have during the ensuing two decades, and the contemporaneous phenomenal expansion of truck transportation upon a widespread system of improved highways were not foreseen. Much less was it realized, even in the 1920's, that the country was again to have a prolonged and severe business depression such as started in 1929, and which soon showed that there was, and for some time to come would be, a large surplus of transportation facilities.

The movement for the extension and improvement of inland waterways which was well under way before the United States became involved in the World War was given a strong impetus by the temporary need of maximum transportation to aid in

carrying on the war, then the extraordinary industrial expansion during the decade ending in 1929 seemed to emphasize the importance of going ahead rapidly with the systematic development of the inland and intracoastal waterways in order that agriculture, industry and commerce might be served by a comprehensive, and, so far as possible, coordinated, system of transportation by water. The effect of the severe business depression following 1929, and the consequent large decrease in traffic, was not to cause less to be spent upon inland waterway improvement and extension, but to cause more funds to be devoted to the work in order that the government might thereby somewhat reduce the large number of men out of employment.

The aim of public policy has been a national system of transportation of maximum efficiency, including railroads, highways and waterways. The measures to be taken to attain this aim were unfortunately not fully understood. If they had been, we would not still be a good distance short of having a really coordinated and balanced system of rail, road, and water transportation. The government is still more concerned with adding to waterway and highway transportation facilities than with bringing about the coordinated use, under like conditions of regulation, of railroads, waterways and highways.

The amount that the United States had expended up to June, 1932, upon improving and maintaining the navigability of the Great Lakes and the rivers, and upon constructing and maintaining canals, not including the amount expended for flood control, is stated by the Mississippi Valley Committee in its report, dated October 1, 1934, to have been as follows:

	Cost of New Work	Cost of Maintenance
Lake harbors and channels	\$157,190,028	\$ 41,126,585
Mississippi River system	377,816,095	61,274,077
Intracoastal canals and other waterways	82,536,052	27,817,800
Operation and care of canals		116,858,340
	\$617,543,385	\$247,076,862

The table shows that the United States, up to June 30, 1932, had spent, for cost of new work and for cost of maintenance, for

improving, extending and maintaining navigation by lakes, rivers and canals \$864,620,237 of which \$198,317,213 was for lakes and \$666,303,024 was for rivers and canals. The sums that have been allocated and appropriated since 1932 for work upon inland waterways greatly increase the amounts spent up to that time. Some figures for the Ohio and Mississippi and Missouri Rivers are given in the statement that follows.

The river upon which the largest tonnage is carried is the Monongahela which flows to Pittsburgh and the Ohio River from the coal fields and many industries of southwestern Pennsylvania. Though its navigable length does not much exceed 100 miles, the Monongahela has had a larger tonnage (27,412,143 tons in 1928 and 25,657,000 in 1930, but only 12,539,764 in 1933) than the Mississippi River has and somewhat more than the Ohio River, but its ton-mileage is not so great because the average haul is less than forty-two miles. As would be expected, the traffic on the Monongahela consists mainly of coal and coke, comprising about 85 per cent of the total, while sand, gravel, ores and metals make up most of the remaining tonnage. The Allegheny River which unites with the Monongahela to form the Ohio has from three and a half to four million tons of traffic a year (2,727,163 tons in 1933) consisting mostly of sand and gravel, coal, coke and petroleum. The principal other traffic feeders of the Ohio are the Tennessee and Kanawha Rivers. The Tennessee transports, in a normal year, more than a million tons, most of which, however, is sand and gravel and thus local to the stream. The Kanawha has a larger tonnage—1,858,638 tons in 1933—over a million tons being outbound shipments of coal.

The Ohio is the most important artery of long-distance river traffic in the United States. Its thousand-mile channel from Pittsburgh to Cairo has been made a waterway with a low-water depth of 9 feet by means of dams and accompanying locks, the dams being of the lift type that can be lowered when the river is in flood and raised when the river is in normal or low stages. The navigation of the Ohio was interrupted by the falls in the river at Louisville until 1830, when a canal with three locks was built around the falls. The United States acquired title to this canal in 1874 and six years later abolished the tolls that had been charged for its use. The government then began the canalization

of the river, and, by successive enlargements of its plans during the ensuing twenty-five years, decided upon the 9-foot low-water project that was finally completed from Pittsburgh to Cairo in October, 1929, when the completion of the last dam was duly celebrated by an address by President Hoover. The total amount spent by the United States upon the navigation improvement of the Ohio and its tributaries up to the completion of the 9 foot Ohio River channel in 1929 was in round figures \$250,000,000.

The gross tonnage of traffic on the Ohio River proper in 1930 amounted to 22,337,000 tons, that on its tributaries aggregated 36,247,000 tons, the total for the Ohio system as a whole, without the elimination of duplications, being 58,585,000 tons which was much more than the tonnage moved on the Mississippi River and its tributaries, but, as the traffic on the Ohio and its tributaries (notably the Monongahela) moved shorter distances, the ton-mileage of the traffic of the Ohio system is regularly somewhat less than half the total ton-mileage of the Ohio and Mississippi systems. The traffic on the Ohio and its tributaries was less in 1933 than in 1930 because of the business depression. The figures for 1933 were 36,716,888 tons gross, and 26,433,603 tons net after eliminating duplications. The shipments on the Ohio River proper, which in 1933 amounted to 16,751,034 tons, consist chiefly of coal and coke (59 per cent in 1933), and sand, gravel and stone, the latter category of traffic amounted to 22.5 per cent of the total and was mostly local short-haul freight. Iron and steel tonnage amounted to 5.7 per cent of the total and these three groups of commodities included 87.2 per cent of the entire traffic.

The statement made by army engineers, in 1927, that "over 95 per cent of the commerce on the Ohio River system is handled by private carriers and the majority of the terminals are privately owned" holds true today. The long-distance traffic (other traffic than that hauled short distances for and by local industries) is moved downstream mainly by coal and coke, iron and steel, and oil and gasoline companies that use their own barges and equipment. Common carriers play a very minor rôle on the Ohio River, and the tonnage of package freight shipped is relatively small. The improvements made to the Ohio River, and its affluents and the maintenance of those works, both at the

expense of the general public, provide facilities useful to, and used mostly by, private industries located on those rivers. A part of the transportation costs of certain industries that make use of the river is borne by the public. Similar industries located elsewhere pay all the cost of transporting their products.

The improvement and maintenance of inland waterways at public expense and their use without charge by shippers is based upon the theory that by providing the transportation facility, there will be a more rapid and a larger development of industry, wealth will thereby be created, employment provided, population will increase and social welfare will be promoted. This theory is sound when economic and other conditions are such that private capital will not provide adequate and economical transportation facilities, but when existing transportation facilities are adequate or more than adequate and are also economical and efficient, should a part of the transportation facilities be created and maintained by the public without cost to those who use them? When a shipper uses a waterway, instead of an available railway, should he not pay for the use of the waterway? Likewise, when a public highway, instead of some other transportation facility, is used in the conduct of a private commercial enterprise, ought not the user of the highway compensate the public for the service he has received?

As regards public highways, the theory that is becoming more and more widely accepted is that the expense of constructing and maintaining highways should be borne by those who use them, each class of users paying its appropriate share of the total expense. This theory has not been accepted as regards waterways, and there was good and sufficient reason why it should not have been accepted in the past when the economic resources of the country were being developed and the country was being settled, and when transportation facilities were inadequate and technically undeveloped. At the present time, however, there is a surplus of transportation facilities, as a whole, and all of them by rail, water and highway, are of high and rapidly increasing technical efficiency. Has not the time come when like requirements should be made of these facilities and when to all of them the same general principles of government regulation should be applied?

This question of general policy is here raised in the discussion of the Ohio River system. That is the river system having the largest traffic of any river system in the United States. On the Monongahela and Ohio there is a relatively large tonnage, and it is probable that shipments on the Ohio will be substantially greater in the future. Nearly all the tonnage, however, is composed of shipments of and by industrial concerns that use the improved waterway in carrying on their business activities. Should the large capital investment in the navigation improvements and the expense of maintenance and operation be borne by the general public, or should the users of the waterway be charged for the services rendered them? The Mississippi Valley Committee, in the recent report, to which reference has been made, suggests that

We need new estimating, accounting and cost-finding technique not only to weigh the advantages and disadvantages of river transportation, but to determine the proper place of inland waterways in a coordinated national transportation system. It may be desirable to introduce a new element by imposing charges where they are justified by special services and special facilities and where the traffic can bear them.

The Mississippi and Missouri Rivers are each much longer than the Ohio, and the Mississippi has several important tributaries in addition to the Ohio and Missouri Rivers. The Chief of Engineers of the United States Army credits the Ohio Section with 3,335 miles of navigable channel, the Missouri section with 2,562 miles, and the Mississippi with 6,578 miles, a total of 12,475 miles for all three sections or systems. A large share of this mileage is of channels under 4 feet in depth, which in their natural state are of practically no value for navigation. The general project for the improvement of these river systems includes 9,000 miles of channel. The Ohio River has been given a 9-foot, low-water channel. The Mississippi River below St. Louis has a 9-foot channel, except in extreme low stages of water, and the River and Harbor Act of 1930 authorized the establishment of a 9-foot channel from Minneapolis to St. Louis. The same Act of Congress provided for the creation of a 6 foot channel in the Missouri River up to Sioux City, a distance of 807 miles. The State of Illinois, aided by the Federal Government, has completed the work upon which it had been engaged for several years of creat-

ing a 9-foot waterway between Lake Michigan and the Mississippi, part way by canal and for most of the distance by the canalized Illinois River

The traffic on the Mississippi River, considered separately from its tributaries has not increased during recent years, probably because of the business depression The tonnage, including duplications, in 1926 was about 19,250,000 tons, in 1928 about 18,500,000, and in 1930 about 15,750,000 In 1933, the tonnage was 18,500,000 The duplications referred to result from the tonnage being reported for the four sections of the river, from Cairo to Minneapolis, from Cairo to Memphis, from Memphis to Vicksburg and from Vicksburg to New Orleans The duplications for the Mississippi River ordinarily amount to several million tons Without duplications, the Mississippi tonnage was 15,598,526 tons in 1933 The tributaries of the Mississippi, other than the Ohio and Missouri, have a total tonnage of about 3,000,000 In round figures, the traffic of the Mississippi proper is fifteen to sixteen million tons, of which about five eighths consists of coal and other non-metallic minerals, somewhat more than one-eighth of agricultural and vegetable products, and another one-eighth of metal manufactures, machinery and vehicles The principal common carrier on the Mississippi is the Government Barge Line, operated by the Inland Waterways Corporation, whose history, operations and traffic are discussed in some detail in Chapter IX The Corporation in 1934 transported 1,483,859 tons, 208,449 tons of which consisted of its traffic on the Warrior River and between Birmingham, Alabama, and New Orleans—the operations of the Government Line being between Minneapolis and New Orleans and between New Orleans and Birmingham The traffic above St Louis has been but a small fraction of the total In 1933, the Government Barge Line started service from Chicago via the "Lakes-to-the-Gulf" waterway across Illinois

There are good and sufficient reasons for improving the navigation of the Mississippi River below the mouth of the Ohio River and also below St Louis There is less justification for expending large sums to provide and maintain a navigable channel in the Mississippi River above the mouth of the St Louis River and especially above the mouth of the Illinois River by which the Lakes-to-the-Gulf Water reaches the Mississippi In

its discussion of the Upper Mississippi Region, the Mississippi Valley Commission, in its recent report, says concerning the past and present of navigation on the Upper Mississippi and its affluents, and the expenditures that have been made and are to be made to improve the navigability of the streams

In its original condition the Upper Mississippi was navigable at certain seasons throughout its entire length, and before the advent of railroads was the most economical route to the northwest. River traffic reached its peak in the decade 1850-60, when it is said 1,100 steamboats plied the upper river. From then on the river traffic was unable to meet the competition of developing railroads, in part because of inadequate depth and obstructions, but chiefly because the rivers, unlike the railroads, were at right angles to the direction of traffic. The Congress of 1878 approved a project providing for a 4.5-foot channel, and in 1907 the present project, which first provided for a 6 foot channel on the main stem above St. Louis, and lesser channels on tributaries, but was modified in 1932 to provide a 9 foot channel on the main stem. The Federal expenditures on projects of the Upper Mississippi system above the mouth of the Ohio to June, 1934, were on the main stem, \$104,800,000, and on tributaries and connections \$21,750,000, a total of \$126,050,000, not including \$40,000,000 for maintenance and operation. The estimated cost of completion of the present project as it now stands is, for main stem, \$91,300,000—additional expenditures on tributaries and connections being estimated as negligible. The maximum traffic since continuous records were begun on the stretch between St. Paul and the mouth of the Missouri was 4.5 million tons in 1903. The minimum was in 1916 with 500,000 tons, between which point and 1,000,000 tons it has since varied. The great decline has been the result mainly of diminishing traffic in logs and lumber.

It is not possible by any calculations of business accounting to discover an economic justification for the vast expenditures on the projected improvement of these waterways, especially from the prevailing viewpoint of self-liquidation, but also even from the viewpoint of complete coverage of costs of maintenance and operation. It is the more impossible when consideration is given to the fact that diversion of grain traffic from railroads, which is included in present calculations, is quite likely to be checkmated by the highly probable development of through water traffic from the Great Lakes by way of the St. Lawrence River to the Atlantic. On the other hand, there is nothing in past experience which permits us to envisage the total situation of productivity and exchange of commodities between the upper, central, and lower reaches of the Mississippi basin, and connected regions, when there shall exist these great arteries of water transport of adequate depth throughout the entire valley and connected with the Great Lakes. Especially is this true in view of the fact that present studies of planned

utilization of natural resources indicate the need of a comprehensive program of new allocations of land to more varied uses, which will inevitably include renewal of traffic in heavy commodities, and in view further of indications of a more decentralized and widely distributed industry

Although the present and the measurable prospective traffic does not seem to justify the large expenditures being made for the improvement of the upper Mississippi River, the committee does not recommend that the project be abandoned. The view of the committee is that

While an economic justification for it cannot be computed by any standard business accounting formula, the Committee does not recommend its discontinuance. There are two reasons for this. First, it is part of a program which already has been authorized by the Congress, second, there is a strong argument that the main stem of the great river should be made one navigation unit from its mouth to these regionally important headwater cities and natural navigation terminals, and, incidentally, that the river system should be tied into the Great Lakes system.

The Missouri is a large river, there are several important cities upon it, one of them being Kansas City, and the river flows through a fertile section and into the Mississippi only 17 miles above St. Louis. There have been hopes of large traffic and much has been spent in canalization. Prior to the Rivers and Harbors Act of 1930, nearly \$42,000,000 had been thus used, and the plans authorized in 1930 and now in process of execution brought the total to about \$60,000,000.

Later allotment of funds by the Public Works Administration and the adoption of elaborate power and navigation projects have greatly increased the expenditures that will ultimately be made upon the Missouri River. A huge dam, for irrigation, the development of power, and for aiding in regulating the flow of the river, is being constructed at Fort Peck in the upper part of the river. As stated by the Mississippi Valley Committee in its most instructive report, dated October 1, 1934, "Fort Peck Reservoir will cost at least \$86,000,000. Further expenditures may make possible ultimate power and irrigation developments with an estimated capitalized value of \$40,000,000. The channel improvements above Kansas City will cost about \$77,000,000,

and those below that city about \$80,000,000. Thus the total construction cost for the improvements under way will be not much, if any, below \$250,000,000. " Nearly two thirds of this large expenditure will be for improving the navigability of a river concerning which the Mississippi Valley Committee, in the report just mentioned, states

The main stem of the Missouri River is being improved for navigation in the face of great obstacles and at an expense which has very doubtful justification. The obstacles hindering its effective development and use as a waterway include both the nature of the river itself and the nature of the transportation needs of the basin. The rather short navigation season in the middle and upper reaches of the river, the low flow in late summer and autumn (normally peak seasons in the traffic of the basin), the shifting of natural channels, the unstable bottom, from which flood waters pick up here and there huge quantities of silt that are deposited at various points farther downstream, the similarly unstable banks in most places, the almost complete lack of navigable tributaries to serve as branch lines of traffic, the general direction of flow from the vicinity of Williston, N. Dak., to Kansas City, one that is directly athwart the dominant course of traffic, and the sparse population and low population supporting capacity of most of the country along the upper reaches, are factors that restrict the commercial usefulness of the river and that make for great difficulty and great expense in attempts at its improvement.

The commercial traffic on the Missouri is of but slight amount. In 1933, the total tonnage moved on the river between Sioux City, Iowa, and the mouth of the river was 1,334,557 tons and all but a few thousand tons of that traffic consisted of sand, gravel, stone, piling, lumber, fuel and other supplies used mainly in the construction work being carried on by the Government.

Expenditures upon rivers, as is indicated by some of the previous statements, are usually for the control of the streams and also for the improvement of navigation. In the case of the Mississippi, much must necessarily be spent to keep the river within its banks, which for a long distance in the lower reaches of the river are above the level of the adjacent land. These works for the control of the river improve its navigability, but much additional work is necessary to establish and maintain a channel of a definite minimum depth that will make it dependable and useful for navigation. The expenditures that have been made upon the Mississippi and its tributaries, other than the Ohio and Mis-

souri, totaled nearly \$200,000,000 up to June 30, 1932, and large additional sums are now being spent upon the Upper Mississippi. The traffic results have not been large and do not promise becoming much larger in the near future, mainly for the reason that the heavier and stronger currents of traffic in the United States are east and west at right angles to the lesser north and south currents that move up and down the Mississippi Valley.

The fact that there is a heavy traffic on the Great Lakes, that Chicago is one of the important foci of that traffic, and that the Great Lakes are separated by a comparatively short distance from rivers that flow into the country's greatest river quite naturally suggested the desirability of connecting Lake Michigan with the Mississippi by a canal to the Des Plaines River and thence by that and the Illinois River to the Mississippi. Such a waterway takes the place of the old and antiquated Illinois and Michigan Canal. The distance from Chicago to Grafton at the mouth of the Illinois River by such canal and canalized river route is 327 miles. By means of this waterway there is created a "Lakes-to-the-Gulf" waterway for which there has long been much enthusiasm. The State of Illinois has spent \$20,000,000 of borrowed funds in creating the waterway with a 9-foot channel, and the United States Government, by the Rivers and Harbors Act of 1930, appropriated \$7,500,000 in aid of the work which was completed in 1933. The waterway was opened for through traffic on June 7 of that year. The traffic during 1933 and 1934 was not large.

What are the prospects as to the traffic of this waterway across Illinois? It is nearly as long as the Erie Canal, but has a depth of 9 feet while the Erie Canal and its branches are 12 feet in depth. The Erie Canal connects Lakes Erie and Ontario with the Hudson River and thus with New York, the greatest center of traffic in America. The Erie Canal is located where the largest currents of traffic flow. Yet, as has been explained, the tonnage of the Erie and associated canals has not been large and their prospects are not very bright. Such being the fact is it probable that the waterway across Illinois, the Lakes-to-the-Gulf Waterway, which does not parallel the lines of the country's major traffic movements, will have a large tonnage and be of great service in promoting economic development? Of course, proph-

esying is not profitable, and it may be that future transportation conditions may develop that will make the Lakes-to-the-Gulf Waterway of greater service than now seems probable to doubting Thomases

For several years the United States has been working toward the ultimate creation of an intracoastal waterway from Boston, Massachusetts, to Beaufort, North Carolina, and thence to Miami, Florida. The waterway would be created by using bays, rivers and bayous and connecting them by canals. The only portions of the waterway, not protected from the ocean, would be the short stretch between Buzzard's Bay and Long Island Sound and the 154 miles reach from the mouth of Cape Fear River, North Carolina, to Charleston, South Carolina, and for the latter section the construction of an intracoastal canal would be possible. The United States has purchased, from the companies that owned them, the Canal from Cape Cod Bay to Buzzard's Bay and the one connecting the Chesapeake and Delaware Bays. The Cape Cod Canal has a depth of 20 feet, and the Chesapeake and Delaware Channel has been given 12 feet of depth. By substituting for the now useless Delaware and Raritan Canal across New Jersey, one 25 feet or more in depth, and by giving the Cape Cod and the Chesapeake and Delaware Canals like dimensions, there would be a waterway, mainly intracoastal, for sea-going vessels from Boston to Norfolk. The Rivers and Harbors Act of 1930 provided for a survey of and report upon a 25-foot waterway from New York Bay to the Delaware River, and the Army Engineers at the close of 1933 reported that such a waterway could be created for \$210,000,000. How much it would cost to provide a waterway of like depth from Boston to Norfolk is not known.

In addition to acquiring the Dismal Swamp Canal, which is 25 miles long, the United States is constructing another waterway 12 feet in depth southward from Norfolk that will be 198 miles in length and will extend by way of rivers, creeks, sounds, bays and connecting canals to Beaufort Inlet, North Carolina. This project is practically completed. South of this point most of the construction work has yet to be done upon the proposed continuous intracoastal waterway to lower Florida. The hope of the champions of the intracoastal waterway is that there may be

included in the waterway, as ultimately constructed, an ocean-ship canal across northern Florida and an inland waterway along the entire gulf coast of the United States. Much can be said in favor of a ship-canal across northern Florida, and conditions along the gulf coast indicate the desirability of an intracoastal waterway, for some sections, possibly the section from New Orleans to Galveston and Houston, Texas, but a continuous inland waterway along the Gulf seems rather fantastic. There is now barge navigation from New Orleans via Lake Pontchartrain and Mississippi Sound to Mobile and up the Tombigbee and Warrior Rivers to Birmingham, Alabama.

There are numerous rivers in the Pacific Coast states, but the nearness to the ocean of the coast range of mountains, and the small rainfall east of those mountains south of the State of Washington, limits navigation for most streams to their tidal reaches. The Sacramento River, which enters San Francisco Bay from the north, and the San Joaquin River, which enters from the south, have channels with a low-water depth of 6 to 9 feet for short distances above tide water. The Columbia River and its important tributary the Willamette are serviceable traffic ways. The tonnage of these two rivers below Portland is mainly that of ocean shipping, but the Willamette above Portland has a tonnage of some volume. The traffic on the large Columbia River is mainly below the Dalles, about 200 miles from its mouth, somewhat more than half of this distance being above the mouth of the Willamette, and the ocean ship channel up to Portland. There is ordinarily less than a million tons of traffic (of which most moves in rafts) on the section from the Dalles to Vancouver at the mouth of the Willamette. Several other streams of lesser importance in Oregon and Washington are of service locally in transporting the forest and other products to market.

RECENT PHASES OF THE INLAND WATERWAYS POLICY OF THE UNITED STATES

The most definite expression of the waterways policy of Congress is that incorporated in the Transportation Act of 1920. This Act provided for the termination of government operation of the railroads and their return to their owners, but stipulated that the government should retain the water transportation

equipment and facilities it had acquired or created during the 26-month period of government operation, and that those facilities should be operated by the Secretary of War "so that the lines of inland water transportation established by or through the President during federal control shall be continued", and a section of the Act stated that "It is hereby declared to be the policy of Congress to promote, encourage, and develop water transportation, service, and facilities in connection with the commerce of the United States, and to foster and preserve in full vigor both rail and water transportation "

To give effect to this declaration of policy, the Secretary of War was directed "to investigate the appropriate types of boats suitable for different classes of waterways," and also the subject of water terminals and appliances and means of facilitating the transfer of freight between railroads and waterways. He was also directed "to investigate the existing status of water transportation upon the different waterways," to ascertain whether they are being used to their capacity, whether carriers upon the "waterways are interchanging traffic with the railroads," and he was "to investigate any other matter that may tend to promote and encourage inland water transportation "

The government carried out this policy. The operation of the government barge line on the Mississippi and Warrior rivers was continued, and, in order to develop the line, the Inland Waterways Corporation was created by Congressional Act in 1924 and given liberal financial support. The activities of the corporation to date and its favored status under the Denison Act of 1928 have been described in previous chapters.

As Secretary of Commerce and President, Mr. Hoover did much to further the development of inland waterways and their use. He also was actively concerned with working out plans for improving the navigation and developing the water-power of the St. Lawrence River, and shortly before his term of office as President expired, submitted to the Senate a draft of a treaty which he had negotiated with Canada providing for the construction of the "sea way" and the water power works jointly by the two countries.

In his address at Louisville, Kentucky, October 23, 1929, on the occasion of the celebration of the completion of the 9-foot

channel in the Ohio River, President Hoover outlined a program for a national inland waterways system. A part of his statement was

We should complete the entire Mississippi System within the next five years. We shall then have built a great north and south trunk waterway entirely across our country from the Gulf to the northern boundaries, and a great east and west route, halfway across the United States. Through the tributaries we shall have created a network of transportation.

Mr. Hoover would have had the trunk system to which he referred given a minimum channel depth of 9 feet, and it would include the Mississippi River from St. Paul to its mouth, the waterway now completed from Lake Michigan to the Mississippi, the Ohio River and some of its tributaries and presumably the Missouri River below Kansas City. Other portions of the Mississippi-Ohio-Missouri might "be made accessible to traffic at 6 or 7 feet." Mr. Hoover included the Atlantic-Gulf intracoastal waterway in his program, and stated that "at the present time we have completed 846 miles of intracoastal canals. We still have approximately 1,000 miles to build. We should complete this program over a period of less than ten years." The St. Lawrence waterway was a part of the program and was considered by Mr. Hoover to be "one of the most vital improvements to transportation on the North American continent."

Shortly after the waterways program here but partly described was proposed by President Hoover, he sent to Congress his annual message on December 3, 1929, in which he referred to the completion of the canalization of the Ohio River, and stated that "The development of the other segments of the Mississippi system should be expedited, and that \$25,000,000 to \$30,000,000 be spent annually for that purpose." He also stated that the "Expansion of our intracoastal waterways to effective barge depths is well warranted." The Rivers and Harbors Act of 1930 passed by the Congress to which these recommendations were made authorized the carrying out of an extensive program of inland waterway improvements involving a total estimated expenditure of \$144,000,000 of which about \$60,000,000, it was expected, would be spent during the first year.

The carrying out of this 1930 program is being expedited by allotments of funds that have been made in 1933-34 by the Public Works Administration created by the emergency legislation enacted at the special session of Congress that was held in the spring and early summer of 1933. Large allotments for inland waterways have also been made from the 4,800 million-dollar appropriation for relief work made by Congress in 1935. Although one purpose of this use of government funds is to provide work for some of the large number of unemployed, it indicates a favorable public attitude toward the continued improvement and extension of inland waterway navigation. At the 1932-33 session of Congress, the Rivers and Harbors Committee reported favorably a bill providing for the expenditure of \$80,000,000 on river and harbor projects of which there were 130, but necessary economy prevented the adoption of the bill. The work that would have been carried on had the bill been enacted, has been amply provided for by the \$125,000,000 that was granted therefor by the Public Works Administration. As has been stated in the preceding discussion, Congress has made appropriations for new works that are now under construction.

It is gratifying to note that the improvement of inland waterways for navigation is being more definitely associated with, and made a part of, a larger plan of river control and utilization. On the first of February, 1934, the United States Senate, and on the following day the United States House of Representatives, adopted a resolution requesting the President to submit a comprehensive plan for the improvement and development of the rivers of the United States "with a view of giving Congress information for its guidance in legislation which will provide for the maximum amount of flood control, navigation, irrigation and development of hydroelectric power." This looks to the broader application of the policy adopted for the Tennessee River and Valley where the United States has undertaken the task of using the river for the maximum development of the economic resources of the valley it drains and for the social benefit of the inhabitants of the valley.² Reference may also be

² Whether the power of Congress to levy taxes and to regulate interstate commerce gives Congress authority to do what has been started in the Tennessee Valley is a question that will presumably be decided by the United States Supreme Court.

made to the appointment at the beginning of 1934, by the Public Works Administration, of the committee that has since submitted a report upon the improvement and regulation of the Ohio-Mississippi-Missouri river system, for the development of hydroelectric power, the regulation of stream flow, the control of floods and the betterment of navigation. This concept of the utilization of our waterway resources as a whole for general economic and social ends gives navigation an appropriate place in a larger scheme that may have influence upon future progress.

The river and harbor acts to which reference has just been made, and the general legislative enactments or parts thereof that have been adopted by Congress to further the development and use of inland waterways, the Panama Canal Act of 1912, the Transportation Act of 1920, the Inland Waterway Corporation Act of 1924, and the amendment to that law adopted in 1928—all of which have been discussed in the previous pages of this book—indicate a progressively favorable congressional policy toward the development, improvement and maintenance of inland waterways by the Federal Government and their use free of charge, and without government regulation, or with slight regulation, by common, contract and industrial carriers. Is it probable that there will be a change of policy in the future?

As regards government regulation of carriers on inland waterways, the business men of the country are apparently in favor of their regulation. In September, 1933, the Chamber of Commerce of the United States submitted to referendum vote of its members, which include the chambers of commerce, boards of trade and similar organizations throughout the country, eighteen propositions concerning changes in the government regulation of competing carriers. The first five propositions were in regard to the regulation of water transportation in domestic commerce. The first proposal was that "All common carriers should be required to obtain certificates of public convenience and necessity." The total vote on each proposition was nearly 2,000, and, on the first question, 87 per cent of the votes were in the affirmative. The second proposition was that "Common Carriers should be subject to regulation as to rates, including port-to-port rates," and 85.5 per cent of the ballots were affirmative. The third question submitted was "All vessels which are not

common carriers and which accept cargo for hire should be required to charge the established common-carrier rates " On this fundamental question as to whether all carriers for hire on waterways should be subject to government regulation, 81 per cent of the votes were in favor and 19 per cent opposed The fourth proposition concerned the prevention of cutthroat competition and was whether "Regulation should require that the rates of both water and rail carriers to competitive points be adequately compensatory to the carriers making the rates " On this the votes were 85 per cent in favor The fifth question was whether "Government operation of commercial water transportation should be discontinued," and, as would be expected, the votes were more than nine-tenths (91 per cent) in the affirmative

This indicates the general business sentiment of the country but naturally not that of those shippers and carriers and producers that are so located as to enjoy the free and unregulated use of inland waterways Of course, it is but fair to say that there are a great many disinterested citizens who regard the inland waterways as gifts of nature or Providence that should, in order thereby to promote the economic development of the country, be improved and maintained at the expense of the government for the free and untrammelled service of those who, as carriers, shippers, or producers, may find it advantageous to use rivers and canals This probably explains why those who may derive a direct benefit from using inland waterways have been able to organize effectively, and to marshal, public support in favor of the present legislative policy regarding inland waterways

There is, fortunately, evidence of a growing conviction on the part of the disinterested majority, who ultimately determine public policy, that the government's relation to all agencies and facilities of transportation—its policy as regards aid and regulation—should be based upon the same general principles When this policy prevails, and only then, will it be possible to bring about the coordination of the several agencies of transport that will result in a general system of transportation The ultimate goal must be a national transportation system, each part of which will function under like conditions as regards government

aid and regulation and will render the service it can perform most efficiently and economically

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NOTE ON THE ST LAWRENCE RIVER NAVIGATION AND POWER PROJECT

For many years there has been widespread interest in a waterway, with sufficient depth of channel to accommodate sea-going vessels, to connect the Great Lakes with the Atlantic Ocean. Alternative routes have been suggested as follows (1) The Great Lakes-St Lawrence route which would connect Lake Ontario with Montreal by a channel of sufficient depth to accommodate ocean-going vessels, (2) A deep-draft connection between Lake Ontario and the Hudson River "either by way of the Oswego-Mohawk route or via the St Lawrence River to Lake St Francis, thence to Lake Champlain, thence to the Hudson", (3) An all-American route providing for the construction of a canal on American territory similar to the Welland Canal which has been built in Canadian territory, (4) Enlargement of the Erie Canal to dimensions ample for ocean-going vessels.¹ The economic handicap of adverse transportation costs of the central western states and provinces of the United States and Canada is the most important factor in the agitation for the construction of what would become the greatest water-

¹ Great Lakes to Ocean Waterways, U. S. Department of Commerce, Domestic Series No. 4, 1927

way development since the completion of the Panama Canal. As early as 1900, consideration was given to the various routes and an American board of engineers reported favorably upon an all American canal from the Lakes to the Hudson via Oswego on Lake Ontario. Subsequent findings of the Board of Engineers for Rivers and Harbors were opposed to the undertaking. The Board, by direction of Congress, again submitted a report in 1926, estimating the cost for a 25-foot channel from Lake Ontario to the Hudson at \$508,000,000, the addition of a canal around the Niagara River to connect Lake Erie with Lake Ontario on the American side, thus making an all American waterway to the Hudson, would, it was estimated, increase the cost to \$631,000,000. Before 1926, numerous national and international commissions studied and reported upon the St. Lawrence project which has been accepted as the most feasible.

As a permanent body created by treaty in 1909 to consider problems involving boundary waters, the International Joint Commission was instructed in 1920 by the Canadian and American governments to investigate the practicability of the proposal to improve the St. Lawrence, the report to include a study of both navigation and hydroelectric power development. For the engineering features of the report, the commission made use of the findings of a board of engineers appointed to submit plans and estimates to the Commission. The report was completed in 1922 and recommended the adoption of the St. Lawrence route, including in the project the New Welland Canal then under construction by Canada.² Little action was taken by either government until 1924, when the United States St. Lawrence Commission, the Canadian National Advisory Committee, and a Joint Board of Engineers were created by the two countries to give further consideration to the engineering and economic features of the proposal. Approximately two years later, January, 1928, the Canadian National Advisory Committee reported favorably to the Prime Minister of Canada. Notes were exchanged and conferences held in regard to the project during the following three years, and the Joint Board of Engineers was reconvened to agree upon the general plan for the development of the international section of the St. Lawrence. The final report of the Board of Engineers was completed in April, 1932, recommending the adoption of a two-stage development plan rather than a one-stage plan which had been favored by the American members of the Board in the report made in 1926. The cost estimate was somewhat higher for the two-stage plan, but many reasons were advanced for its adoption, one of them being greater assurance of safety for the city of Montreal, which is situated on the St. Lawrence below the dam sites.

Formal negotiations between the two governments led to the signing of a treaty on July 18, 1932. President Roosevelt submitted this treaty to the Senate of the United States on January 10, 1934, but on the 14th

² Senate Document No. 114, 67th Congress, 2nd Session

of March the Senate voted not to confirm it. The proposed treaty provided for (1) the amount of construction to be carried out by each nation in accordance with the final report of the Joint Board of Engineers, (2) the equal division of the water utilized for power purposes in the international rapids section, (3) sovereignty, (4) navigation rights, and (5) preservation of water levels of the Great Lakes. In his message to the Senate urging ratification of the treaty President Roosevelt said:

"I am sending you herewith a summary of data prepared at my request by governmental agencies. This summary, in its relation to the economic aspects of the seaway, shows from the broad national point of view, first, that commerce and transportation will be greatly benefited and, secondly, local fears of economic harm to special localities or to special interests are grossly exaggerated.

"It is, I believe, a historic fact that every great improvement directed to better commercial communications, whether in the case of railroads into new territory, or the deepening of great rivers, or the building of canals, or even the cutting of the Isthmus of Panama, have all been subjected to opposition on the part of the local interests which conjure up imaginary fears and fail to realize that improved transportation results in increased commerce benefiting directly or indirectly all sections.

"For example, I am convinced that the building of the St. Lawrence seaway will not injure the railroads or throw their employees out of work, that it will not in any way interfere with the proper use of the Mississippi River or the Missouri River for navigation."

The summary of data referred to by the President contained cost and traffic estimates prepared by the Corps of Engineers, Joint Board of Engineers, The Department of Commerce and other government agencies. The total cost to the United States was placed at \$272,453,000. From this total, it is proposed that \$89,726,000 be deducted and assumed by the State of New York as the cost of developing 1,100,000 horse-power on the American side of the International Rapids section. Annual seaway carrying charges consisting of interest, amortization, and maintenance are placed at \$9,300,000 for the United States, or 7 4 cents per capita. These estimates are considerably below those made by several non-governmental authorities. Competent engineers have placed the costs of the entire project in excess of one billion dollars to be divided about equally between the two countries with allowances made for works already completed.

In 1926 the St. Lawrence Commission transmitted its findings which included the following points.

1. Construction of the waterway will decrease the economic handicap of an interior area of the two countries having a population exceeding 40,000,000. This area is now at a definite disadvantage in the import and export trade because of higher costs of carriage in comparison with sections nearer to the seaboard. The relative isolation has become more

evident since the opening of the Panama Canal in 1914 and "construction of the shipway is imperative both for the relief and for the future development" of this vast area.

2 A channel depth sufficient to permit navigation by vessels having a draft of 25 feet would accommodate 88 per cent of all ships using American ports and provide a waterway with an estimated annual capacity of 30,000,000 tons.

3 Consideration should be given to the interests of the State of New York in the development of power in the international section.

4 Diversion of traffic from the railroads and Atlantic seaports will be counteracted by the increase in population and traffic during the period of construction, estimated to be ten years.

Opinions vary widely concerning the amount of traffic that will be available for the completed waterway. Highest official estimates have been made by the United States Department of Commerce³ and the St Lawrence Commission which was respectively 19,000,000 to 25,000,000 tons and 21,000,000 to 25,000,000 tons per annum. Other opinions place potential traffic as low as 10,500,000 tons.⁴ The product expected to move in greatest quantity is grain, and persistent effort has come from the grain producing states to assure completion of the project in order that they may realize the predicted savings in transportation costs upon export grain. It is unlikely that grain or cereal products for domestic consumption would move by the Saint Lawrence in large quantity. During the years immediately preceding the beginning of the economic depression in 1929, American exports of wheat had declined, indicating that the exportable surplus of grain from this country might decline gradually in the future because of increased domestic consumption, because of increased production in Canada, Argentina, Australia and Russia, and as a result of a reduction in acreage in the United States due to the distressing condition of agriculture that has prevailed for the past decade. If it may be assumed that exports of grain from the United States will not be restored to the level of former years the success of the undertaking, from the point of view of this country, would depend largely upon the development of electrical energy and a large diversion of traffic in export and import commodities other than grain to the Saint Lawrence from the railways and waterways serving the north Atlantic and Gulf ports. Diversions of such traffic in amounts sufficient to justify the participation of the United States in the construction would be at the expense of those ports through which a large share of the overseas trade now moves. A normal increase in the general cargo trade, together with additional traffic created by the improvement would necessarily have to be large to compensate for a reduced exportation of grain, and the distribution of the general cargo.

³ Great Lakes to Ocean Waterways, Domestic Commerce Series No. 4, 1927.

⁴ H. G. Moulton, C. S. Morgan and A. L. Lee, *The St Lawrence Navigation and Power Project* (1929).

trade among the ports of three routes—St Lawrence, Gulf and north Atlantic

Other factors, including the short period of navigation, heavy seasonal movement of traffic, the necessity for ample and uninterrupted sailing for the accommodation of shippers of general cargo, and the creation on the Lakes of facilities for deep-draft ocean carriers, are advanced by opponents of the projects as arguments for abandonment or delay in negotiations for construction. Although opinions concerning the probable increases in the prices received for farm products vary widely, conservative analyses agree that some part of the reduced cost of delivery to world markets would accrue to the producers of the middle-west and Canada. A large part of the value of the undertaking to agriculture would thus be dependent upon an exportable surplus large enough to insure efficient and adequate steamship service from the wholesale grain markets at upper lake ports.

The economic benefits to be realized from the generation of hydro-electric energy are admitted, but opponents of the St Lawrence development contend that the generation of power in amounts mentioned in a number of engineers' reports would be premature exploitation and consequently unsound for many years.

Further objection is made to the development because the waterway is to be toll free, thus placing the construction and maintenance costs upon the country as a whole rather than upon those directly benefited. If averages are taken of the various construction costs and traffic estimates, it is apparent that sufficient revenue for maintenance of the canal and liquidation of the investment could be derived only from comparatively high toll charges.⁵ Income from the sale of electric energy cannot properly be applied to the liquidation of the entire investment because consumers of the electricity would thus be making contributions to the users of the waterway. The entrance of the government into the field of private enterprise is likewise advanced by power interests as an objection to the power development phase of the undertaking. It is the contention of the railways and of many unprejudiced authorities that the waterway should be self-supporting and not a governmentally created competitor that will operate only during a part of the year while the railways supply facilities sufficient for satisfactory and adequate service at all times.

Presumably President Roosevelt will negotiate another St Lawrence Waterway treaty with Canada and submit it to the Senate with the hope of securing favorable action.

⁵ Toll free use of the St Lawrence is now assured United States vessels by agreement with Canada.

CHAPTER XXXIV

PROBLEMS OF LEGISLATION AND REGULATION THE OUTLOOK FOR THE FUTURE

THE policy of the Federal Government toward transportation by water and the carriers engaged therein has been considered in the discussion of the building and operation of ships engaged in the foreign and domestic trades of the United States, and in presenting the facts regarding the improvement of inland waterways and their use. This closing chapter may well state briefly the legislative policy that needs to be carried out to further the development of facilities, and to provide for the adequate regulation of transportation by water.

The general purpose of the policy of the government regarding transportation by water has been and now is to aid in its development and to be of assistance to all classes of carriers engaged therein, but the means taken by the government to accomplish its purpose, especially that of aiding ocean shipping, have been changed frequently. There has been no logical development of a mercantile marine policy, and the administration of shipping legislation has been especially vacillating and ineffective. What is needed is a program of legislation and administration that will deal comprehensively with the development and regulation of the several kinds of transportation by water and the carriers engaged therein. A common purpose should inspire all legislation, and there should be unity of administration. Moreover, the facilities of transportation by water should be developed and regulated as part of a general transportation system by water, by rail, by road and by air, the several parts of this general system being coordinated. The goal should be the correlated and balanced development of all parts of the system.

General agreement as to the policy that the government should adopt for the development and regulation of carriers engaged in transportation by water can hardly be realized in the immediate

future There are conflicting interests and political theories, but an objective and dispassionate view of the facts presented in this volume, and the government's experience to date as described in the preceding pages, leads to the following conclusions as to the principles that should control and the measures that should be adopted in congressional legislation for the furtherance and regulation of transportation by water

1 American shipping in the foreign trade should be aided or subsidized not by ocean mail payments, as at present provided for by the Act of 1928, but by deciding what ocean lines from the ports of the United States to other countries are needed for carrying on and developing our foreign commerce, and by granting to those lines such subventions as will enable them to operate successfully in competition with lines under foreign flags As was recommended in March, 1934, by the then director of the Shipping Board Bureau of the Department of Commerce, and by the secretary of the department, the government should ascertain, for each of the routes and lines decided upon as being essential, the capital and operating costs of a line composed of American-built ships flying the American flag and the corresponding costs of a similar line under a foreign flag The differential costs or handicap of the American line having thus been determined, the government should enter into a contract with the American line for the performance for a period of years of the services essential to American foreign commerce and should grant a subsidy equal to the ascertained differential. This would be a businesslike method of assuring the successful development of an American merchant marine that would provide both freight and passenger services So far as possible, our ocean mails should be carried on American ships and payment should be a reasonable compensation for the service instead of being made the indirect means of granting a subsidy that can but partially accomplish the purpose that should be attained by government aid to ocean shipping

2 The promotion of the American merchant marine, the enforcement of the laws applying to vessels, their measurement and registry, their equipment with safety appliances, their inspection, and their navigation, the laws applying to seamen—in general the administration of the "navigation laws"—should

be by the Department of Commerce. The semi-judicial task of passing upon the reasonableness of the agreements entered into by ocean steamship conferences, and of enforcing statutory provisions against unreasonable discriminations by ocean carriers as among shippers and ports regarding rates and services should be entrusted to the authority that regulates the rates and services of carriers engaged in interstate commerce. If the present shipping board bureau is continued within the Department of Commerce, its duties should be promotional and administrative, the regulation of tariff-making and rate practices, and the prevention of unfair discriminations should be transferred to an appropriately organized division of the Interstate Commerce Commission.

3 Common and contract carriers by water in interstate coastwise and intercoastal commerce should be fully regulated by the Federal Government, which should decide what carriers may enter the service and should so regulate the services performed and the rates charged as to prevent the carriers from engaging in destructive warfare with each other and from making discriminations in services and rates that are harmful to shippers and unfair to competing railroads whose business practices are fully regulated by the public. This policy is advocated by the Interstate Commerce Commission, by the Coordinator of Transportation, and by the business interests of the country generally, with the exception of certain seaboard shippers who with shortsighted vision think they have more to gain by being left free to bargain with individual carriers. The wisdom of adopting the policy seems obvious.

4 Common and contract carriers engaged in interstate commerce on the Great Lakes and other inland waterways should be required to obtain a certificate of public convenience and necessity evidencing the need for the proposed services, and their services and rates should be so regulated as to stabilize the business of the carriers, to protect the public against unfair discrimination, and to maintain a coordinated and complementary relation between all carriers, including those by water, by rail and by road.

5 When the government devotes public funds to the creation of transportation facilities, those using the facilities thus created

should make such payment for the use as will cause the shippers and carriers served by the facilities, instead of the general public, to bear the burden of providing and maintaining the facilities. The present policy of government aid to transportation was adopted when transportation facilities were inadequate and economic development was being thereby retarded. That condition no longer exists. There is at present a surplus of transportation both by land and by water. The general policy now logically justifiable is one that places each agency of transportation upon its own basis, while assuring to each agency the opportunity to perform the service it can render most efficiently and economically. The adoption of this principle will require a fundamental change in the present policy of the government. There will be no little opposition to such a change, but the issue must be faced, it cannot be avoided.

6 The government should seek to bring about such a coordination of the several agencies of transportation by water, road, air and rail as will provide for a through and unified service from shipper to consignee, the service to be performed in the most expeditious and economical manner. This will involve bringing the several agencies of transportation into a coordinated system for the performance of their services. This goal can be attained partly by the initiation and voluntary action of the carriers concerned, but much legislation and administrative action by the government will be needed to bring about the actual coordination of the several agencies and facilities of transportation into a real national system. The process will be partly evolutionary and partly compulsory, and time will be required to accomplish the final results that should be achieved. The aim sought should be kept in mind in all transportation legislation.

7 The administrative regulation of the several agencies of transportation should be unified. One authority should regulate interstate carriers by land, water and air. The best agency for the accomplishment of this is the Interstate Commerce Commission which could be and should be so organized and its several divisions so functionalized as to regulate effectively all agencies of interstate transportation. The regulation of all agencies of transportation is admittedly a large task, but it can be per-

formed better and more easily by one general authority, appropriately organized and subdivided functionally, than by several authorities working independently of each other and quite certainly without singleness of purpose and aim. In fact, the regulation of transportation will be made less difficult by bringing all of the several agencies under a single administrative authority.

8 The legislation recommended by the coordinator of transportation for the regulation of interstate common and contract carriers by water and upon the highways should be promptly enacted. It is to be regretted that this action has not already been taken. Congress was occupied during 1933 and 1934 with emergency legislation dealing with conditions created by a prolonged business depression. Much thought has also been given to bringing about social changes, while such important economic matters as the regulation and coordination of transportation agencies have had to wait their turn. Well matured bills for the regulation of interstate motor carriers have been before Congress for some time. Legislation on that subject reached its final stages just as this volume went to press. Presumably, because of lack of public support, there will be more delay in accomplishing the adequate regulation of carriers by water.

The ideal procedure would be for Congress to deal comprehensively with the regulation of interstate transportation in a single enactment by applying the same general principles of regulation to all the several agencies, and by creating a single authority to administer the law. However, such procedure can hardly be hoped for. Our legislative machinery does not work rapidly and tends to turn out piecemeal products. Except when there is clear evidence of a definite and strong public opinion in favor of measures of general public concern, there is difficulty in overcoming the opposition that selfish interests are certain to make to the enactment of legislation that is to be adopted for the benefit of the country as a whole. Action must wait upon and result from the pressure exerted by the insistent demand of intelligent public opinion.

It is pleasing to note, however, that there is encouraging evidence that the public realizes the necessity for the comprehensive, unified and effective regulation of the several agencies of

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